



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### Usage guidelines

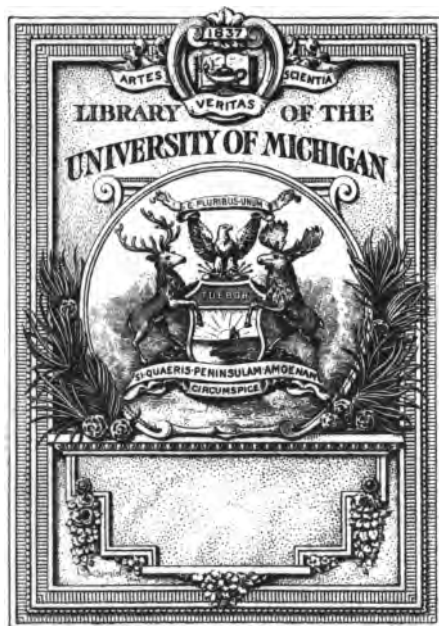
Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



J=

HII

5166

P134

10/6 ned



## **EIGHT HOURS FOR WORK**



# EIGHT HOURS FOR WORK

5-3892

BY

JOHN RAE, M.A.

AUTHOR OF "CONTEMPORARY SOCIALISM"

London

MACMILLAN AND CO.

AND NEW YORK

1894

*The Right of Translation and Reproduction is Reserved*

**RICHARD CLAY AND SONS, LIMITED,**  
**LONDON AND BUNGAY.**

U3-22-27 2018

## PREFACE

I WAS led to undertake the following inquiry because I could find no solid bottom in any of the current prognostications, favourable or unfavourable, as to the probable consequences of a general adoption of an eight-hours working day. They were all alike built on a little stock of assumptions about the natural effects of shorter hours, which nobody seemed to think it necessary to verify. Even the economists who ventured into the play, though they perhaps speculated with more system, still speculated with the same unverified materials, and obtained accordingly only the same problematical results. It seemed therefore that if we wanted to know what was to happen now the best way to begin was to find out what had happened before, and instead of trusting to preconceptions of the natural effects of shorter hours, to ascertain, if possible, what their actual effects have been in the countries which have had experience of them; to learn how the ten-hours day, and the nine-hours day, and especially the eight-hours day itself, have worked out where they

reclaimed 25 Mar 21 1893

have been in actual operation. The available evidence is unexpectedly copious, and its teaching is unexpectedly plain and uniform. In the course of the investigation I have found it impossible, personally, not to grow a stronger and stronger believer in the eight-hours day. Shorter work-hours have left every nation that has chosen them at once healthier, wealthier and wiser; and the shortening to eight seems, if I may say so, to be blessed above its predecessors. According to positive experiences of it, the eight-hours day has been almost invariably fair. It may be that the facts which have persuaded the writer will not as easily persuade the generality of his readers; but at any rate, a tithe of them should be sufficient to dispel those antecedent assumptions of which I have spoken, and which have so seriously prevented the question from being considered in the true light.

Some of the matter of the first three chapters, and most of the fourth and fifth, have already appeared in the *Contemporary Review*, and the eighth (except a few paragraphs here and there) in the *Economic Journal*; but the rest of the book is now published for the first time.

I may take this opportunity of supplementing the account given in the text of the experience of the eight-hours system in the engineering trade, by stating here the results of the year's experiment of the eight-hours day in Messrs. Mather and Platt's Iron Works at Salford, which have only been made known while the sheets of this work were going through the press. Mr. William Mather, M.P., the head of the firm, has

written a report upon the experiment for the consideration of employers and work-people in the engineering and machine-making trades, and a full summary of this report appeared in the *Times* of the 29th of March.

The Salford Iron Works are a large establishment, employing 1,200 hands, and the employers who said Mr. Allan's experiment proved nothing because it was made in a small establishment cannot raise the same objection against the experiment of Mr. Mather's firm. Their business is making machinery, about which they employ a variety of different trades—pattern-makers, iron- and brass-moulders, smiths, copper-smiths, tinplate workers, engine-fitters, millwrights, electrical mechanics, turners, fitters, brass-founders, boiler-makers, &c., and on the 20th of February, 1893, they reduced the hours for all trades at their works from 53 to 48 in the week— $8\frac{3}{4}$  hours on each of the first five days of the week, and  $4\frac{1}{2}$  on Saturday. The day was divided into two spells, with a single break for dinner, instead of three spells as before; the men took their breakfast before coming to work in the morning. After a year's trial Mr. Mather has had the results carefully examined and compared with the average of the six preceding years, and has found, exactly as Messrs. Allan, Messrs. Johnson, and Messrs. Short found in their works, that the men have produced more in the shorter hours than they used to do in the longer. The work done was of the same kind—"the production during the two periods," he says, "has been similar in character"; and "as regards quantity of production, there was actually a larger output in the trial year." "The actual quantity produced was considerably

larger than in the six preceding years." He did not reduce wages during the year, and as prices happened to fall, that gave an appearance as if the wages cost of the work had risen a little; but it is obvious that in reality the wages cost of the work had fallen, because he got more work from his men for the same money. "Had prices ruled the same, the turnover in the trial year would have been greater, and the wages cost, instead of showing an increase of 0·4 per cent., would have shown a decided decrease." Then he has "found a marked economy in gas and electric lighting, wear and tear of machinery, engines, gearing, &c., fire and lubricants, and miscellaneous stores"; and what is not a little curious, even in the matter of "the increased fixed charges due to interest of plant and machinery, rent and taxes, permanent staff on fixed salaries, being employed five hours less a week, the balance of debtor and creditor accounts on these expenses is unmistakably in favour of the trial year." The results on the whole seem to have been even more favourable than the results obtained by Mr. Allan, and as far as size of works has anything to do with such experiments, that is what would be expected, because the larger works have generally got the better appliances.

There appears to have been no change in the machinery or in its speed, and Mr. Mather ascribes the result "solely to the unimpaired and cheerful energy on the part of every man and boy throughout the day. We seem," he says, "to have been working in harmony with a natural law instead of against it, as in the unnatural conditions of men beginning the work of the



day without the provision required by nature for the proper exercise of their mental faculties and physical powers." He thinks much of this increase of personal energy due to the abolition of the two hours' work before breakfast, which were not only in themselves "worthless as time"—as working time that is—because the hungry workman is not a fit workman, but also exercised a lowering influence on the vigour, freshness, and brightness of the men all through the working day. But besides the improvement in personal energy, there was also a marked improvement in respect to lost time. "The proportion of 'time lost without leave,'" he says, "to the total time worked, averaged in the 53-hours period 2·46 per cent., whereas in the 48-hours period it is only 0·46 per cent." And this does not represent the full extent of the evil removed, for men often work in gangs, and the absence of a single member of the gang stops the work of his mates, though they are present. Some of the men are on piece-work, and the effect of the change upon them was specially watched, because it was thought that they at least must have been already doing their best, and could not make up their earnings by harder exertions if their hours were shortened. But, says Mr. Mather, "this anticipation has not been realized." In certain cases the piece-work rates were reduced during the year, but if that reduction had not been made, the difference between the earnings of the piece-workers in the 53-hours week and their earnings in the 48-hours week would have been only 0·5 per cent. to the disadvantage of the latter, and a trifling difference

like that is perfectly immaterial, because, as Mr. Mather says, it is not at all unusual between any two years even under the same hours. Besides, had the examination of the piece-workers' earnings been confined to the last half of the year, after they got accustomed to the new conditions, it would be found that they had earned more than they did under the old system. For Mr. Mather says: "In order to judge better of the working out of the system as regards piece-work, the year has been divided into three parts of approximately equal lengths. In the first period the surplus over day-work rates was 1·76 per cent. less than the standard piece-work wages; in the second period, 1·58 per cent. less than the standard piece-work wages; in the third period, 0·78 per cent. less than the standard piece-work wages; the average for the twelve months coming out at 1·41 per cent. less than the standard. These figures show that as the year advanced there was a steady adaptation to the altered conditions; and it is reasonable to expect that the small difference remaining at the end of the year will soon disappear."

# CONTENTS

CHAPTER I	
	PAGE
THE BALANCE SHEET OF SHORT HOURS . . . . .	1
CHAPTER II	
THE EIGHT-HOURS DAY AT WORK . . . . .	44
CHAPTER III	
THE RESERVES OF PERSONAL EFFICIENCY . . . . .	96
CHAPTER IV	
THE EIGHT-HOURS DAY AND FOREIGN COMPETITION . . . . .	142
CHAPTER V	
THE EIGHT-HOURS DAY AND THE UNEMPLOYED . . . . .	179
CHAPTER VI	
EIGHT HOURS WORK AND TEN HOURS WAGES . . . . .	217

# CONTENTS

## CHAPTER VII

	PAGE
THE ENGLISH EIGHT-HOURS MOVEMENT OF 1833 . . . . .	244

## CHAPTER VIII

THE EIGHT-HOURS DAY IN VICTORIA . . . . .	258
---	-----

## CHAPTER IX

EIGHT HOURS BY LEGISLATION . . . . .	315
--------------------------------------	-----

INDEX . . . . .	331
-----------------	-----

# EIGHT HOURS FOR WORK

## CHAPTER I

### THE BALANCE SHEET OF SHORT HOURS

THE eight-hours day is no new thing in England ; it was common in some of the greater employments only a hundred years ago. Adam Smith in the *Wealth of Nations* speaks as if 8 hours a day were then the usual time of work among colliers, and the statement is confirmed by the explicit testimony of Gabriel Jars, a mining engineer who visited the English and Scotch mines about the year 1765, and mentions that the Scotch miners wrought in two shifts of 7 or 8 hours each, and the Newcastle miners in two shifts of 6 or 7 hours each.<sup>1</sup>

Arthur Young visited the collieries of Mr. Danby at Swinton in Yorkshire in 1771, and mentions that the miners, after the performance of their stated task, had still half the day left to themselves. They used gener-

<sup>1</sup> Jars, *Metallurgische Reisen*, i. 320 ; ii. 438.

ally to spend their leisure in idleness or rioting at the alehouse, but Mr. Danby had cured them of these ill habits by giving every man an allotment of land. Young found them each with his three acres and a cow, some with as much as twenty acres and horses as well as cows, but all making farming their chief recreation, and transmuted into homekeeping, industrious and thriving men. He mentions one prodigy who was near 12 hours at the mine—from midnight till noon—and did with 4 hours sleep in order to have 6 or 7 to devote to his eight-acre farm, but from the general tone of the narrative this man's long hours at the mine must have been exceptional. They could not have left him "half the day" for rioting at the alehouse.<sup>1</sup> Young's words seem more applicable to the short day indicated by Smith and Jars. The stated task may have taken some men longer to do than others, and this man, who allowed himself only 4 hours' sleep, very probably and naturally longest of all, but Young certainly gives the impression that it left most of the miners an abundance—at one time in his view a superabundance—of spare time.

The hours of farm labour at the same period were quite as easy. The Labour Commission has just reported that the horsemen on English farms at the present time very commonly do 11 or 12 hours of actual work, exclusive of meal-times, every week-day, and 4 or 5 besides on the Sunday, but the horsemen on

<sup>1</sup> Young, *Tour in North of England*, ii, 262.

English farms in last century seldom did more than 8 or 9. Writing in 1787, William Marshall, the agriculturist, while mentioning that the ploughmen of Norfolk sometimes wrought as long as 10 hours a day, says that in most parts of the kingdom 8 hours a day was the ordinary custom for team labour.<sup>1</sup> Indeed, in some counties the working hours were even shorter. In Bucks, for example, the ploughmen went out in the summer half-year—from Candlemas to Martinmas—at 7 in the morning, returning at 3 in the afternoon, and in the winter half-year they went out at 8 and returned at 3. They had also, of course, to attend to the feeding and cleaning of the horses at home.<sup>2</sup> In Bedfordshire their day was from 6 in summer and from daylight in winter till 1 or 2 in the afternoon, with an interruption for a meal about 10, called beaver-time.<sup>3</sup> In Warwickshire it was in summer from 6 till 2 or 7 till 3, and in winter about 6 hours. In Hampshire the rural labourers seldom reached their work in winter before 8 or 9, or even 9.30, in the morning, and quitted it about 3 in the afternoon, while in summer they would be generally met returning from work about 5, and the reason given for their easy hours by Vancouver, the writer of the Report to the Board of Agriculture upon that county, is that they had a great choice of occupa-

<sup>1</sup> W. Marshall, *Rural Economy of Norfolk* (London, 1787), i. 138.

<sup>2</sup> James and Malcolm, *Agriculture of Buckingham*, 1794, p. 39.

<sup>3</sup> Marshall, *Review of Reports to Board of Agriculture for Midland Department of England*, p. 589.

tion there, and could not be got to work longer at daywork on a farm than other labourers wrought at task-work in the forests, or at the salt-pans, or on the canals, or at the variety of jobs to be found at Portsmouth. In Devonshire the men went out before 8 in the morning, and returned at noon, and then went out again at 2, and returned before 6, working about 8 hours a day. Indeed, they would often be seen on their way home, even in the summer, about 5.<sup>1</sup> If Gervase Markham in his *Farewell to Husbandry*<sup>2</sup> is describing the common practice, and not laying down a model merely, field work in the seventeenth century occupied 7 or 8 hours without a break, beginning at 7 in the morning, and ending at 2 or 3 in the afternoon. Besides that, the servants had stable work in the morning, for which, inclusive of time for prayers he allows two hours; they had to feed the horses at 4 and 8, prepare their fodder for next day, water them, and when not otherwise engaged in the evening, they might be mending shoes for themselves or the master's family, or picking apples or candle rushes, or beating flax. These would seem to be rather devices to occupy spare time than part of their obligatory task; and on the whole there seems little doubt that Hodge led a much easier life in the reign of Elizabeth than he leads now in the greater reign of Victoria.

<sup>1</sup> Marshall, *Rural Economy of West of England*, i. 119.

<sup>2</sup> Ed. 1668, p. 112.



The Factories Commission of 1833 report the evidence of a very old man, a Nottingham frame-work knitter, who had worked 69 years at the stocking-frame, and said that when he first went to work in 1745 as a lad of ten, the knitters never wrought more than 10 hours a day for 5 days in the week and always kept Saturday free for going into Nottingham with their work, or for gardening, or any other thing they had to do; but then as he wore on in life they were obliged to work 12 hours a day, and of late years as many as even 14 or 15.<sup>1</sup> In the old domestic industries, and indeed in all trades in which the workmen had command of their own time, it was the too common practice to work very long hours one-half the week and go hand-idle the other, the idleness necessitating the overwork and the overwork again necessitating the idleness. The craftsmen wrought and idled as they chose by fits and turns, and it was their habits that made Defoe say the English people were the most diligent lazy people on the face of the earth. The weavers, Arthur Young notices, used to keep hounds, and would break off from their looms at any moment at the first sound of a hunt; and Sir E. Baines mentions that even in his time, in the early part of this century, the hand-loom weavers, in consequence of their irregular habit of working, which seems characteristic of industry in a state of nature everywhere, would seldom work more than 56 hours in the week.

<sup>1</sup> *Report*, p. 180.

Professor Thorold Rogers's acute inference of the prevalence of the eight-hours day among the English artisans of the fourteenth and fifteenth centuries is well known. Wages were smaller in winter than in summer because the day of labour was necessarily shorter, and Mr. Rogers was struck with the circumstance that winter wages were paid for only two months in the year—December and January—and concluded that the ordinary day of labour for the other ten months of the year was not longer than could be wrought between daylight and dark in November and February, and therefore not longer than about 8 hours. He draws the same inference for a subsequent period from the fact—First, that such a large number of hours of overtime—as many sometimes as 48—were occasionally worked in the week, that it would be impossible to pack so many into a single week unless the normal hours were short; and second, that overtime was paid at that rate per hour which the ordinary wages would amount to if the day consisted of 8 hours. Magistrates, it is true, by virtue of statutes of Elizabeth's reign, often fixed the hours of labour in their districts at 14 a day and even more, but these decrees, as Mr. Rogers informs us, were habitually ignored. In fact we can easily perceive that it would be practically impossible to enforce them if masters and servants were agreed on anything else, and they appear to have been treated as merely prescribing a maximum and leaving the

actual hours to settle themselves as they could by local custom. In 1684 the magistrates of Warwickshire fixed the hours of labour at  $14\frac{1}{2}$  a day between March and September, and from daylight to dark between September and March.<sup>1</sup> But we have just seen that a century later than that the customary hours in Warwickshire were only 8 in summer and 6 in winter for the ordinary agricultural labourer, with no doubt something like an hour and a half more for men who had stable work to attend to. In Kent about this same period the standard or nominal hours were 10, but the writer of the Agricultural Report for that county states that these nominal hours were never strictly observed in consequence of the easy ways of both masters and men; in consequence, he says, "partly of the scarcity of workmen, who well know that if one master will not give them their hire for a short day another will, and partly of the inattention of masters and their bailiffs to the hours of working."<sup>2</sup>

England indeed seems to have been in former days, as she has again become in our own time, known among the nations for the moderation of her day of work. Fuller in his *Church History* makes the shorter hours and richer fare of this country the two great inducements that persuaded the Flemish weavers to come over and settle in England at the instance of

<sup>1</sup> Rogers, *Six Centuries of Wages*, ii. 394.

<sup>2</sup> Marshall, *Agriculture of Southern England*, p. 434.

Edward the Third. They should exchange their herrings and mouldy cheese for the beef and mutton of England, and they should no longer work, as they had been compelled to do by "the churles their masters," "more like horses than men, early up and late in bed, and all day hard work." Not very long after the period of the arrival of these Flemish immigrants, Sir John Fortescue, Chief Justice of the King's Bench under Henry the Sixth, attributes even the existence of some of our free institutions to the fact that the common people of England enjoyed a greater measure of leisure than the common people of other countries. He was living in exile in France at the time he wrote the book in which he makes this remarkable observation, and he says it would be impossible to establish such a thing as trial by jury in that country, because the French people were so fatigued with hard labour that "twelve honest men of the neighbourhood" could not be found who had sufficient mental energy left in them to discuss the rights and wrongs of an intricate case. The English owed their leisure very largely, he said, to their pastoral or mixed farming, which enabled them to "lead a life more spiritual and refined as did the patriarchs of old," but however it came it brought men better possession of their faculties and capacity for the arts of freedom.

It would appear then, from many different sources of evidence, that in the old England before the industrial revolution, people were everywhere accustomed to

season their toil with a due admixture of repose. It is the short day, after all, like liberty, that is ancient; long hours, at least in this country, are but a modern and happily transitory innovation. Taking one day with another, our ancestors seem seldom to have exceeded the wise old rule of King Alfred the Great, and in some of the remaining unrevolutionised branches of industry it is common enough still to hear employers complain that no matter what the nominal hours of labour may be, their men never average more than 8 hours a day of actual work. The very long working day seems to have been really a gradual fruit of the factory system. Those who laid down expensive machinery grudged seeing it stand a moment idle, and they lengthened the period of work first to 12 hours, as it was in Arkwright's time, and then to 13, 14, and sometimes 16 hours a day. They grudged even to pause for a meal. In Manchester at the time of the Reform Bill, the mills ran from 5 in the morning till 9 at night without any stoppage but an hour for dinner, and the hands had to breakfast as they best could while standing and attending the machinery. In the old days of water-power the mill was often obliged to lie idle in seasons of drought, and the necessity of making up for the time thus lost afforded constant pretexts for temporary prolongations of the day of labour, which were then apt to remain as the permanent rule. Even yet we have industries where water-power works and steam-power works are con-

ducted almost side by side in the same town, and the regular hours are always longer in the water-power works than in the others. But the dominant cause of the prolongation was common to water-mills and steam-mills alike: it was the new and large expenditure on factory buildings and machinery—the increase of fixed capital—the determination to get as much out of the machinery as possible, and the belief which subsequent experience has refuted that, as a manufacturer said to Karl Marx, every ten minutes more they got their machinery to run meant another thousand a year in their pockets. In the same way long hours came into the mine with the steam-engine and the trainway towards the close of last century. Before that time the pits were of no great depth, and the coals were carried from face to bank on rude sledges, or even on the backs of women. But with the steam-engine men were able to go deeper for the coal and yet carry it up easily on the tramways (first laid in 1777), and between the extension of the improved appliances and the ever-increasing depth of the mines, which ever prolonged the time necessary for going to the face and coming from it, occasion was continually taken to lengthen the hours of work underground.

The same influence seems to have operated even in agriculture, for, as we have seen, the county in which the hours of field labour were, at the end of last century, longer, and its pace faster than they yet were in the rest of England, was the county of Norfolk, which

had already undergone the transition to the more scientific, expensive, and (if I may use the word) capitalistic system of cultivation in modern use. In every case the day of labour seems to have lengthened as the application of capital in the industry increased. The consequence was that in many of the great staple trades the workpeople were driven for most part of the year out of every remnant of the sunshine. They spent their days in a strained lying position in the hot and foul air of a mine, or in a strained standing position in the equally hot and equally foul air of a mill; they lost their old energy of habit and contracted various disfigurements, even of form, and, as Mr. R. Guest remarks in his *History of the Cotton Manufacture*, in less than a single lifetime the very tastes of the English workmen changed. Instead of their old manly sports of wrestling, quoits, football, and the longbow, they betook themselves to pigeon-fancying, canary-breeding, or tulip-growing. They had neither time nor spirit left for anything better, though under an eight-hours system the old English tastes would probably revive again as they are now reviving in such a remarkable way among the workpeople of Victoria.

But for the last sixty years we have been slowly learning the lesson that all this successive prolongation of working hours, which was near eating the heart out of the labouring manhood of England, was also, from the standpoint of the manufacturers' own interest, a grave pecuniary mistake. In their haste to be

repaid their expenditure on machinery, the manufacturers were really wearing down the most precious machine they had got—their great *machine mère*, as Blanqui called it—on which the success of all the rest depended. They found that with this flesh and blood machine an hour's more running in the day did not mean an hour's more product in the day, but that really, after a certain limit, an extra hour of repose has much higher productive value than an extra hour of work. The American manufacturer made a foolish as well as a heartless remark who pointed to his work-people playing about the fields, and said, "What a waste of God's sunshine!" Even if God's sunshine were sent for no other purpose than turning a mill, it probably could not have been used to better advantage even for turning a mill than in the way these people were at that moment engaged. A French manufacturer once said to Guizot: "We used to say it was the last hour that gave us our profit, but we have now learnt it was the last hour that ate up our profit," and though we still hear much fright expressed about the competition of the pauper and long-hour labour of other countries, we are coming more and more to perceive that Mr. Mundella is probably right in saying it is really their long hours that save us from their competition, because their long hours impair the personal efficiency of their labour and the competition between the nations is growing every day more and more to be mainly a competition in personal efficiency.



The question of questions therefore, in connection with any proposed further reduction of the hours of labour, is the question of the probable effect of the change on the personal efficiency of the workpeople. If short hours meant short product, they would mean short profits and short wages too; and good wages are at present as essential to the improvement of most of the working class as more leisure; but then shorter hours may not in reality mean shorter product, for they may so better the quality of labour that as much is done afterwards in the short day as was done before in the long. They have invariably had that result sooner or later hitherto; and the pith of the eight-hours question is the question how far a new reduction of the day of labour may be reasonably expected to be attended with that result again. As some help towards a correct opinion on this important point, it will be useful to examine the recorded experience of previous reductions in the length of the working day, and mark the diversity of sources from which the compensating improvement in the labourer's personal efficiency that attended them accrued. If these resources remain largely unexhausted, and if eight-hours experiments already prove that they may be successfully utilised to balance the loss of time, then there would seem no reason why history should not repeat itself on the present occasion.

The first experience of a reduction of hours has always been very various. Some enterprising manufacturers have generally made the experiment before

the restrictive law came into force and found it advantageous; then, after the introduction of the law, while some reported favourably from the very beginning, the majority reported a decrease of product for the first few months, or the first year or two; but eventually the favourable experience became general, either because the shorter hours had time to tell on the vital and mental energies of the workmen, or because employers had one after another discovered the secret, which some of them discovered at the outset, of making up for the diminution of work-hours by improved arrangements of the work. In cases of shortening the very long thirteen-hour day, the result was often a surprisingly large immediate increase, as an effect of the mere relief from physical exhaustion. The managing partner of a Massachusetts cotton mill told the Labour Commissioner of that State, in 1883, that when he reduced the factory hours, fifteen years before, from 13 to 11, he found that with the same machinery the production of prints rose from 90,000 to 120,000 yards a week,<sup>1</sup> and the Middlesex Company of Lowell, on making the still greater reduction from 13 hours to 10 hours 24 minutes in 1872, found that by increasing the speed of their machinery so as to make as many revolutions in the day as before, and replacing female labour by male to a very slight degree (3½ per cent.), their product increased by 290,117 pieces (or about £135,000 worth) in the

<sup>1</sup> *Report on Uniform Hours of Labour*, p. 142.

year, and the earnings of their workpeople by 57 per cent.<sup>1</sup>

But instances of so great an increase are rarely met with. What is very common on all occasions of hour-shortening, whether to the eleven-hour day, the ten-hour, the nine-hour, or the eight-hour, is to obtain a slight increase, either immediately or after a six or twelve months' trial. In some workshops, but always few in number, there is reported on all occasions to have been a loss of product proportionate to the loss of time, but in the great majority there was either a slight diminution only or the same output as before, partly due in some cases to a resort to new mechanical arrangements, causing a certain increase in the cost of production. But on the whole the general impression left on every occasion alike is that, taking one shop with another, the average production has not suffered to any degree worthy of mention from the shortening of hours. The world possesses now very abundant experience of shorter hours, and its experience has been entirely the same in England, in America, in France, in Holland, in Switzerland, and in Austria.

The first great general reduction of hours was the reduction in the English textile trades by the Ten Hour's Act of 1847, and it was regarded, not merely by employers but by many even of its warmest promoters, with considerable trepidation as a leap in the dark. It is true that a whole generation before, the experiment

<sup>1</sup> *Massachusetts Labor Bureau Report*, 1873.

of shortening hours on a very substantial scale had been tried with signal success by Robert Owen, the Socialist, in that great seedplot of fruitful social reforms, the famous cotton mills of New Lanark. He ran those mills  $10\frac{1}{2}$  hours a day for the twelve years from 1816 to 1828. The hours there seem to have been 16 at one time, and to have been  $12\frac{1}{2}$  about the date of his new semi-philanthropic partnership with Jeremy Bentham and William Allen in 1814. They were first reduced from  $12\frac{1}{2}$  to  $11\frac{1}{2}$ , and then finally from  $11\frac{1}{2}$  to  $10\frac{1}{2}$  in 1816. And what was the result? One of Owen's old workpeople, John Alexander, said to the Factories Inquiries Commission, that to his surprise the quantity produced after the reduction of 1816 did not sensibly fall off from the quantity produced previously, and that this was due entirely to the greater personal exertions spontaneously elicited from the operatives, among whom a general increase of cheerfulness and alacrity was very observable at the time, though, he added, it was not so great as the similar increase that occurred when the hours had been on a former occasion reduced from  $12\frac{1}{2}$  to  $11\frac{1}{2}$ .<sup>1</sup> He makes no mention of any improvement or speeding of machinery but attributes the whole result to the improvement in personal efficiency. Lanarkshire cannot stand the competition of Lancashire to-day though the hours are the same, but during those twelve years Owen successfully competed with all rivals, though he wrought two, three,

<sup>1</sup> *First Report*, p. 96.

or even four hours less in the day. He tells us himself that when he was in France in 1818, he was invited by the Duc de la Rochefoucauld to visit and inspect a cotton-spinning factory the duke had erected on his estate, and he examined the whole administration of the business. "I found by this investigation," says Owen, "that I was manufacturing the same numbers or fineness of yarn or thread, but of much better quality, at the New Lanark establishment in Scotland at 4*d.* per lb. cheaper than the duke. One penny per lb. upon the annual produce at that time at New Lanark was £8,000 sterling, which when multiplied by four gives a gain upon the same quantity over the duke's of £32,000 a year."<sup>1</sup> The New Lanark mills continued to yield high profits. Bentham is said to have declared that that was the only successful speculation he ever embarked in, and Owen himself carried away from the place a considerable fortune, of which he lost £40,000 in his ill-fated attempt to found a community at New Harmony. If he conducted a profitable business not merely without the aid of "the last hour," from which other employers alleged all their profit accrued, but without the aid of the two last or even the three last hours, it must manifestly have been because there lay no real advantage in the long hours elsewhere prevalent, and because, as Mr. Alexander intimates, his work-people actually did as much in their short hours as the others did, or as they had done formerly themselves, in

<sup>1</sup> *Life of Robert Owen*, by himself, p. 169.

the longer day. Yet the world never seems to have discovered this remarkable fact, in spite of the extraordinary attention it then paid to the New Lanark institutions, and it kept on prating about "the last hour" for nearly a half century longer.

Its experience of shorter hours was considerably enlarged by Hobhouse's Act, which occasioned the reduction of the hours in cotton factories to 69 a week, but the results of their operation seem to have been little observed, and when observed they seem to have been curiously diverse. Mr. Greg, a Lancashire cotton-spinner, for example, who reduced the hours in his mills at that time from 72 to 69 a week, found that the change caused a proportional diminution of product in one of his mills, a more than proportional diminution in a second, and a positive increase of product in a third. The only explanation he could think of for so strange an increase was that the operatives had probably not been before working at nearly their full stretch, but he does not test the correctness of this explanation by comparing the previous individual production in the respective mills.<sup>1</sup> Opinion could not be much altered by such perplexing diversities of result, and the eminent men who composed the Factories Commission of 1833—Mr. Thomas Tooke, Mr. (afterwards Sir) Edwin Chadwick, and Dr. Southwood Smith—only stated the general opinion of the time when they said in their report that an Eleven Hours Act would mean a

<sup>1</sup> *Factories Inquiry Commission Report*, p. 37.

twelfth less production and a corresponding fall of wages.

This remained the established opinion at the time the Ten Hours Act was passed, and even Mr. Leonard Horner, the factory inspector, though a strong friend of shorter hours, could not help entertaining grave anxieties regarding the consequences of that Act, thinking it, in fact, a dangerous and imprudent step to make so great a reduction as two hours a day at one sudden swoop. His fears were signally belied by the event. The Act came into operation at a most unfortunate moment—a time of grave depression in the cotton industry, so that employers were not specially anxious for a large production, and they reduced the wages of their hands by about 25 per cent.—10 per cent. for bad times, and one-sixth of the remainder for the shortening of the day; yet Mr. Horner was able to report, towards the close of 1848, that many of the workpeople had said to him that “by increased exertion and keeping closer to their work, they were able to earn so much more, that the difference of their present earnings from what they were when they worked 12 hours was very trifling.”<sup>1</sup> That is to say, in ten hours (or even less, for the regulation time was 58 hours a week till 1850) they did as much work as they used to do in 12, and nearly 10 per cent. more. Most of the men, no doubt, suffered considerably the first year in their wages, and some of them would on that account prefer, if they could,

<sup>1</sup> *Factory Inspector's Report*, 1848, p. 16.

to work 11, but none of them would go back to 12, and on the whole the majority preferred remaining as they then were, for they felt better in health. They had the benefit, as one workman said, in their bones if not in their pockets, and besides they saw the benefit come in various indirect ways to their pockets too. The shorter hours gave them time to make their purchases more advantageously, or their wives time to attend to the children or the washing personally, so that they were almost as well off as ever, even pecuniarily, in spite of the slight loss in wages. But those who actually made as much money under the 10 hours system as under the 12 hours system seem from the first to have been by no means few. Besides Mr. Horner's general statement, already quoted, he mentions several specific cases. For example, a mule-spinner told him that but for the reduction of the rate of wages on account of the depression, he would have been earning the same wages as he did before the Act. Two adult male weavers in another Lancashire mill said they did about as much work in the day, and earned about as much wages as formerly, and that they did not find the closer attention they were obliged to exercise fatigued them so much as the longer term of work. Another factory worker, who made 30s. a week under the 12 hours system before the 25 per cent. reduction in wages, was making 27s. 3d. a week under the 10 hours system after the reduction. When the 10 per cent. reduction in piece rates on account of the depression is taken off, it is evident that he was really



doing 3*d.* a week more work in the short day than he was in the long.

The book-keeper in another cotton mill, marked W by Mr. Horner, told him that through paying the overlookers by the piece, and the consequent improvement in their vigilance over the workers, the mill was producing nearly as much in 10 hours as it previously did in 12 ; that in the throstle-room and the card-room the produce had been increased, and *progressively so*, from 16 $\frac{3}{4}$  to 17 $\frac{1}{2}$ . The throstle-room hands were also themselves on piecework, and those who used to get 9*s.* 6*d.* a week under the old system, and whose wages were reduced to 8*s.* a week when the 10 hours system began, were now through piecework, making 9*s.* 4*d.* a week, which, considering the lowered prices of labour by reason of the bad times, proves that they were really doing a much better day's work in 10 hours than they ever did in 12. The book-keeper of another cotton mill, BB, employing 174 hands, all weavers, said he found very little difference in the product of the mill from the old amount, the hands sticking closer now to their work. The manager of cotton mill BC also said there was not much difference in the produce of his mill, because the men all wrought more actively than before. The partners of cotton mill BA<sup>2</sup>, employing 186 hands, chiefly weavers, reported that their hands "worked with more spirit, and produced nearly as much as they used to do in 12 hours; indeed, many of them fully as much." They said they had in the old times observed that the men were so exhausted

during the last hour that they were quite unfit to attend properly to their work ; but, though they had now speeded the looms a little more, they do not speak of the existence of similar exhaustion ; indeed, their remark obviously implies the contrary. The manager of cotton mill BH said the men did more in the 10 hours they now wrought than they ever did in 10 hours under the old system.

In his report for 1849 Mr. Horner produced a detailed report he had received from a large manufacturer in Manchester, showing from the wages paid for a week in the weaving-shed in the years 1845 and 1848-9 respectively that very nearly as much was produced on the same 69 looms in 58 hours as was done formerly in 69 hours, the speed of the looms having been slightly increased. He paid £145 a week in 1845, and if the men had produced at the same rate they would at the old rate of wages have earned only £121 in 1848, but they actually did enough to earn £143 at that rate of wages. They did, therefore, £22 worth more work, and of that £5 was due to speeding machinery, and £17 to closer attention to work.<sup>1</sup> The manager of another cotton mill said to Mr. Horner, "We are now turning off the same amount of work as we did when we worked 12 hours. When I came to this mill nine years ago the quantity turned out in the spinning department was the same as we turn out now, and there has been no change in the machinery, and no increase in the speed. I set down the keeping up of the

<sup>1</sup> *Factory Inspector's Report*, 1849, p. 4.

quantity entirely to the greater attention and activity of the hands. They are able to work better by the shorter time they are at it.”<sup>1</sup>

“The manager of another cotton mill, equally large, on the same day made a similar statement, except that in that mill there had been a small increase in the speed of the machinery. The manager of a woollen mill stated a fact within his experience which struck me as very remarkable, that working at the same thing and at the same rate of wages, the women working 10 hours a day averaged as much wages as the adult male working 12 hours. He ascribed it entirely to their paying closer attention. There is no peculiarity in the nature of the work or machinery in this mill.”<sup>2</sup>

On the 31st October, 1851, when the Act had been three years in operation, Mr. Horner was able to come to the following decisive general conclusion:—“In all those departments of the factory in which wages are paid by piecework—and these constitute probably not less than four-fifths of the whole, the proportion to fixed weekly wages being daily on the increase—it has been found that the quantity produced in  $10\frac{1}{2}$  hours falls little short of that formerly obtained from 12 hours. In some instances it is said to be equal. This is accounted for partly by the increased stimulus given to ingenuity to make the machines more perfect and capable of increased speed, but it arises far more from the workpeople, by improved health, by absence of

<sup>1</sup> *Factory Inspector's Report*, 1849, p. 5.

<sup>2</sup> *Ibid.*

that weariness and exhaustion which the long hours occasioned, and by their increased cheerfulness and activity being enabled to work more steadily and diligently and to economise time; intervals of rest while at their work being now less necessary."

In 1853 Mr. Grant, for twenty years manager of the Nuttall Mills, employing 600 hands, reported to Mr. Horner that, by extra attention during the hours they were then employed, and a little increase in the speed of the machinery, the men were making quite as much money as ever they did, and that their moral character was "visibly and rapidly improving."<sup>1</sup>

Before this last date masters, as well as men, had discovered that the reduction of hours involved no diminution of profit or of income, and instead of capital flying from the textile industries or from the country, there was a very large increase in the number and size of the textile factories of the kingdom during the years immediately following the Ten Hours Act. Tooke shows in his *History of Prices*,<sup>2</sup> that during the years 1850-1855, as many as 570 new mills (wool, cotton, flax, and silk), with an aggregate of 14,389 horse-power, were built in the United Kingdom; that 226 of the old mills were extended by additions, with 5,977 horse-power, while only 177, with 3,788 horse-power, became unoccupied. This is crowning evidence that the profitableness of the ten-hours day was already

<sup>1</sup> *Factory Inspector's Report*, 1853, p. 20.

<sup>2</sup> Tooke's *History of Prices*, vi. 52.

accepted as general experience; the mills which suffered a loss in output at first must now have learnt how to get as much work out of the better preserved energies of their hands as made the loss up again, and even more; and the common opinion of the trade has long been, as was stated by the late Mr. John Slagg, M.P. for Manchester, at the Technical Instruction Commission, "that in the cotton industry, when the hours of labour were limited, the people worked with more energy and intelligence, and not only maintained the same rate in the shorter hours, but in some cases exceeded it, so that really we are producing in that industry as much under the shorter system as we did in the long one."

America, though still on the whole an eleven-hour country, has had much experience of the ten-hours day, and the experience of America is quite as favourable as the experience of England. I have already mentioned the Middlesex Company of Lowell which reduced its hours in 1872 from 13 to 10 at one great bound, and spite of the magnitude of the reduction obtained an increase of product. A large carpet mill had run the ten-hours day for twenty-five years, at the time of the Report of 1882, with great and constant success, and its hands earned more wages than those of any other mills in the State, with possibly one or two exceptions.<sup>1</sup> Connecticut is still an eleven-hour State, but the Willimantic Linen Company, among other firms, has adopted the ten-

<sup>1</sup> *Massachusetts Labour Bureau Report for 1882*, p. 140.

hours day, and after the first six months—during which they suffered a certain diminution of product, due however to other causes than the shorter hours—they have produced as much in the day as they used to do.<sup>1</sup> Massachusetts has been for some years a ten-hour State, and its Labour Commissioner instituted a special investigation in 1881 for the purpose of comparing results in the ten-hour mills of Massachusetts and the eleven-hour mills of the neighbouring States of New England. The conclusion he arrived at was this: "It is apparent that Massachusetts with 10 hours produces as much per man, or per loom, or per spindle, equal grades being considered, as other States with 11 and more hours, and also that wages here were as high, if not higher, than in States where the mills ran longer time."<sup>2</sup> Before the Ten Hours Act was passed in Massachusetts the ten-hours day had been voluntarily introduced into many works in that Commonwealth; and the Labour Bureau gives in its report for 1872 an account of seventy-two of these experiments in almost every kind of industry, and the great majority of them successful. They include work so various as shoe manufacturing, rubber thread making, chair making, organ making, wheel making, ship-building, engineering, and cotton spinning.

The competition between Massachusetts and Connecticut or Rhode Island is manifestly a much keener thing than the competition between Lancashire and

<sup>1</sup> P. 141.

<sup>2</sup> *Report on Uniform Hours of Labour*, p. 137.

Alsace or Saxony because it is a competition between men of the same race, with the same markets, the same materials, the same climate, the same rate of interest, and, in short, the same conditions generally; and in this strenuous competition, with all other conditions practically equal, it is found that the State with the ten-hours day beats the States with the eleven-hours one. The advantage of the shorter day could not be put to a stricter proof.

In Switzerland an Eleven Hours Act was first introduced into the Canton of Glarus in 1872, and in the first year of its operation a loss of product was reported in all the mills; in some as low as a hundredth, in others as high as a fifteenth; but in 1874 the deficit was converted into a positive increase, and several firms who had factories in other cantons as well as in Glarus, were enlarging their Glarus factories instead of carrying their capital elsewhere, as it was often prophesied they would do.<sup>1</sup>

The Eleven Hours Act was applied to all Switzerland in 1878, and the experience of Glarus was then repeated over the whole Federation. Dr. F. Schuler, the Swiss factory inspector, has in a recent article given us many interesting details of its operation taken from the books or from the lips of the manufacturers themselves. He says that very numerous were the spinning mill-owners who informed him that though their output fell somewhat at first, it rose to its former level after the introduction of the system of paying a premium on the amount

<sup>1</sup> Knorr, *Die Normal Arbeitstag*, p. 22.

produced; and that still more numerous were the workpeople who said they earned as much after the diminution of their working hours as before it. In one mill using self-actors the books showed that without any change in the machinery except a very slight speeding, and with the same number of yarn and the same raw materials, there was a positive daily increase of 18 kilogrammes per 10,000 spindles in 1879-80 over the production of 1876-77, due almost entirely to the improved activity of the workers; and when this mill, by permission, ran overtime for a quarter in 1880, the production, instead of increasing by 9·1 per cent., declined by 0·9 per cent., an experience, he adds, which is by no means uncommon in Switzerland. One manufacturer, whose whole loss by the change was only 1·9 per cent., told him he had lost nothing whatever with good workmen, and another said the adults did as much as before, but not the children. From the books of one mill he gives the work done in 1877 and 1881 by four accidentally-selected spinners with the same machinery, the same raw materials, and the same number of yarn. The average of the four was higher in 1881, but two of them did more in 1877, and two did more in 1881. The figures may be given:

	1877.	1881.
1 . . . . .	2·87 . . . . .	2·84
2 . . . . .	2·50 . . . . .	2·81
3 . . . . .	2·94 . . . . .	2·81
4 . . . . .	2·84 . . . . .	2·98
	<hr/>	<hr/>
Average	2·78 . . . . .	2·81



In spinning the finer numbers there has been a lessening of the product, but in the coarser, as much, if not more, has been done. The amount varies from year to year even with the same men, machinery, and materials, but the average is on the whole higher since the reduction of hours. Here are the figures of work done in a coarse spinning-mill for the five last years of the twelve-hours day, and the five first of the eleven-hours one.

Twelve Hours.	Eleven Hours.
1873 . . . 100	1878 . . . 97·6
1874 . . . 98·5	1879 . . . 101·9
1875 . . . 106·7	1880 . . . 104·5
1876 . . . 104·8	1881 . . . 110·8
1877 . . . 102·1	1882 . . . 102·6

In weaving the results were better than in spinning. The general report of weaving-mills was that they did as much as they were used to do, or merely a thought less, but Dr. Schuler had seen the books of one which showed an increase of 6·5 per cent.<sup>1</sup> He mentions a tannery and a watch factory which had gone in advance of legislation and voluntarily reduced their hours still further, from 11 to 10, without suffering any diminution whatever in the product of the day's work. Though paid the same rate per piece, the men earned as much as before, did better work, and were more easily managed. The degree of this recuperative operation seems to vary with the individual, with the class of work, with the skill of the management, with probably many other things,

<sup>1</sup> *Archiv für Soziale Gesetzgebung.* Bd. IV., pp. 90-5.

but it is present in every trade in which mental or physical exertion is called for, and on the average an hour off a thirteen or twelve-hour day seems in most such trades to be in all countries a distinct gain rather than a loss.

An Eleven Hours Act for all factories and workshops was passed in Holland in 1889, and after two years' experience of its operation, M. Struve, the factory inspector, examined very thoroughly the question of its effect on the amount of production, and came to the conclusion that there had been no diminution. "In establishments of various kinds quoted by him, such as pipe and cigar factories, and board-box manufactories and bookbinding works, and even in some of the larger spinneries, the decrease of one hour in the working time had led to no difference in the production. One establishment is specially mentioned where the working arrangements were entirely altered to suit the new requirements as to female labour, with the result of a rise in production in the proportion of five to seven."<sup>1</sup> This Act not only forbade women from working more than 11 hours a day, but forbade them also from working later than 7 o'clock in the evening, and the washerwomen at first rebelled against both these prohibitions, declaring that in the laundry business it was impossible to get their orders executed without working very irregular and often very late hours. But after being forced into conformity by

<sup>1</sup> Sir Horace Rumbold's *Report to English Foreign Office*, 1892, p. 6.

repeated prosecutions, they have found that "all the exigencies of the business are as punctually attended to in the shorter number of working hours as they had been under the old harassing system." Some of the cotton mills had introduced improved machinery, and found it advantageous to go beyond the law and reduce their hours voluntarily to  $10\frac{1}{2}$  a day.<sup>1</sup> In Austria the general experience of the reduction of hours from 12 to 11 in the textile industries is stated in a recent Consular report to have been that the production increased in quantity and improved in quality, and an Austrian wool mill at Eger, which voluntarily reduced the hours still further to 10, has again found the like result of a slight rise in quantity and improvement in quality. Braf mentions an even more striking case. A Bohemian manufacturer in bad times reduced his hours from 11 to  $8\frac{1}{4}$  and found his output undiminished, and Braf adds that he had been often told of similar occurrences by both Bohemian and Saxon manufacturers, but when he asked them thereupon why then did they not adopt the shorter hours for a permanent arrangement, their answer always was, because the other employers would not do the same.<sup>2</sup>

The experience of France and Germany, as far as it goes, is to the same effect. As far back as 1866 M. Dollfus, the well-known cotton manufacturer of

<sup>1</sup> Sir Horace Rumbold's *Report to English Foreign Office*, 1892, p. 5.

<sup>2</sup> Fränkel, *Der Tägliche Arbeitszeit*, p. 32.

Mülhausen, in Alsace, reduced the work-hours in his mills from 12 to 11, and found a slight decrease of product for the first fortnight, but after a month an increase of 4 or 5 per cent. Mr. Scott, of Greenock, having opened a shipbuilding yard in France to execute a French contract, reduced the hours of the French shipwrights from 12 to 10, and stated to the Trade Depression Commission that he found the change "advantageous so far as he was concerned." Indeed he raised their wages in consequence of it from four to four and a-half francs a day, so that the shipwrights must have done more work in the shorter day than in the longer one.<sup>1</sup> It is more than fifty years since Michel Chevalier received a letter from the director of a large cotton factory at Wessenberg, employing 4,000 hands, in which it was stated that the day of labour in that factory had recently been reduced by half an hour and that the result of the reduction was an increase of  $\frac{1}{24}$ th in the product.<sup>2</sup>

The factory inspectors of Germany mention in their report for 1886 that they had often heard manufacturers say that when their hours of labour had been for any reason shortened for a time, the production had not diminished because the loss in time had been made up by a gain in energy on the part of the workers; and on the ground of such experiences manufacturers

<sup>1</sup> *Trade Depression Commission*. Qu. 11934—6.

<sup>2</sup> Chevalier, *Cours d'Economie politique*, I. 151.

had often expressed the belief that no harm would result from a general reduction of hours; though when asked, "Why then do you not begin the shorter hours in your own mills?" they always replied, "I cannot make the beginning, my competitors must do it along with me."<sup>1</sup> In 1888 the inspectors reported that the manufacturers were opposed to the long hours then prevailing, and, though they still hesitated to make any change themselves, they would not resist a legal restriction to 11 hours a day.

So far of the earlier abbreviations of the working day from the indefinitely long hours once prevalent to the eleven-hour and the ten-hour limit. To come now below that limit, we still find experience showing that the tenth hour can be dispensed with advantageously in the same way as the eleventh or the twelfth.

In the textile industries the experience of the good results of the ten-hours system soon induced many manufacturers to experiment in further reductions. Mr. Mundella, in introducing his Factory Bill in 1874, described an experiment he had made in his own mill of reducing the hours to 55 a week, and beginning at 8 in the morning instead of 6. Under the old 6 to 6 rule, he said, the women had to hurry to their work without breakfasting, often unkempt, and hardly dressed even, and trudge one, two, and often three miles through the rains and snows of winter to reach the mill, and then do two or three hours' work without any

<sup>1</sup> Lexis, *Handwerkerbuch*, p. 766

food. But under the new rule they had time to breakfast comfortably before they came, and the experiment had been thoroughly successful. "I have now tried it for several years in succession, and the effect has been the production of more work from 8 to 7 than from 6 to 6." He mentioned further a number of cases where manufacturers had reduced their hours from 60 to 58 a week, and finding it answer, had informed him they were now contemplating a reduction to 54. Mr. Pratt, of Messrs. Wood, Sturt, and Sharp, hosiers, Belper, had already told the Children's Employment Commission in 1862 that his firm had reduced their hours to  $9\frac{1}{2}$ —from 8 A.M. to 6.30 P.M., with an hour off for dinner—and got as much work done in the day as they got when their hours were from 6 A.M. to 7 P.M.<sup>1</sup> A Leeds clothier informed Mr. F. D. Longe in 1862 that he had shortened his hours from  $10\frac{1}{2}$  to  $9\frac{1}{2}$ , and got quite as much work from his hands as he got before.<sup>2</sup>

The new Factory Act reduced the hours in the textile industries from 60 to  $56\frac{1}{2}$  on the first of January, 1875, but we have no such adequate evidence of the effect of that reduction as we possess of the effect of the Ten Hours Act. The factory inspectors seem to have made no attempt at any serious investigation of the subject. They report in 1876 that on the whole the employers had suffered some loss of product, though they had derived partial compensation

<sup>1</sup> *Children's Employment Commission Report*, p. 376.

<sup>2</sup> *Ibid.*, 2nd Report, p. 86.

from the increased speed of machinery and the increased attention of the workers, and some of the latter, even on piece-work wages at the old rates, were earning as much as they did before. But this initial loss seems to have soon been made good again. Mr. Thomas Birtwistle, secretary of the United Textile Factory Workers' Society, and of the North-east Lancashire Weavers' Association, states that though they were paid the same piece-work rate, they have been producing in the 56½ hours, not only the same amount, but more—4 per cent. more—than they ever did in the 60, and he attributes this result, not to any improvements in machinery, but to the extra effort on the part of the operatives, and to the expedient of giving the overlooker a bonus on the amount of the production, and thus inducing him to keep ever driving and pushing the operatives to their very utmost exertion.<sup>1</sup>

Several representatives of the Leeds woollen manufacture appeared before the Factory and Workshop Acts Commission in 1876, and stated that the reduction of factory hours from 60 to 56½, in consequence of the Act of 1874, had reduced the product of wool mills in the same proportion. When it was suggested to them that some manufacturers had recouped themselves for the lost half-hour in the day by forcing their work-people to stricter attention to their work and getting more out of them in the time, their answer was, Then they must have managed their business

<sup>1</sup> *Labour Commission Report*, Group C, Qu. 1539.

very badly indeed before the reduction took place. But that at least is not the right inference from the circumstances. Whether shortening work-hours is followed by this complete compensation or no, its natural effect in every case is some degree of such compensation, some improvement in the product per hour, and if there are mills in which no degree of compensation at all has been obtained, the true inference is that there is something in the management of those mills which has prevented that natural effect from taking place. The inference is not that the mill was badly managed before in which the improvement in efficiency has appeared, but that the mill is badly managed now in which it fails to appear. After ten years' more experience of the factory hours under the Act of 1874, Mr. Mark Oldroyd, M.P., woollen manufacturer, Dewsbury informed the Trade Depression Commission that he did not think there had been any perceptible increase of cost arising from the abbreviation of the working week from 60 hours to  $56\frac{1}{2}$ . "Of course," said he, "there are certain operations where it is merely a question of starting the machinery and letting it run so many hours, and then shortening of the hours does not tell in the same manner; but taking our operatives in the aggregate, I do not think it has made very much difference, and I think it certainly has had a tendency to increase the attention paid to machinery."<sup>1</sup>

<sup>1</sup> *Trade Depression Report*, Qu 14135.



The silk manufacturers of Leek reduced their factory hours some time ago from  $56\frac{1}{2}$  to 54, and assured Miss Abrahams lately that the work now done during 54 hours is as great in quantity and better in quality than that which was done during  $56\frac{1}{2}$  hours.<sup>1</sup> The female hands told Miss Abrahams their health had been better since the reduction, but they now wanted such an arrangement of hours as would allow them to come to the factory after breakfast instead of before it. A Scotch firm, however, which has tried this plan in the linen trade at Dunfermline (Messrs. Hay and Robertson), dividing the day into two  $4\frac{1}{2}$  hour spells with one break, has given it up after four months' trial because  $4\frac{1}{2}$  hours' work on end was found too great a strain on many of the women. The stronger women said they did not mind the strain, and had earned more wages after the shortening of the hours, and the employers expressed themselves as satisfied with the experiment from their point of view, but they have gone back to the  $56\frac{1}{2}$  hours and two breaks.<sup>2</sup>

When the Scotch ironmoulders received the nine-hours day, Mr. J. M. Jack, the secretary of their association, says "as much work, if not more, was done in the 9 hours as was done in the 10."<sup>3</sup> The largest cigar manufacturer in Hamilton, Ontario, reduced his hours a few years ago from 10 to 9, and, as is stated in the Report of the Canadian Labour Commission, he

<sup>1</sup> *Labour Commission Report on Employment of Women*, p. 136.

<sup>2</sup> *Ibid.*, p. 188.

<sup>3</sup> *Labour Commission*, Group A, Qu. 23522.

suffered no diminution in consequence in the day's production.<sup>1</sup>

Mr. Chamberlain related an interesting experience of his own firm, in his admirable speech in the House on Mr. Leake's Mines (Eight Hours) Bill in March, 1892. "When I was in business" said he, "(I am speaking of twenty years ago), my firm was working under great pressure 12 hours a day. Shortly afterwards the Factory Acts were applied to Birmingham, and we reduced the hours to 10 a day. Some time later we voluntarily reduced the hours to 9 a day, after the experiment at Newcastle of a nine-hours day. We were working self-acting machinery. All the workmen had to do was to feed the machinery and see the fires were kept in order. In this case, if in any, the product should be directly proportioned to the number of hours worked. What is the fact? When we reduced the hours from 12 to 10, a reduction of 17 per cent., the reduction in the production was about 8 per cent., and when we again reduced the hours from 10 to 9, a reduction of 10 per cent., the reduction of production was 5 per cent." It will be observed that there was here apparently no speeding of the machinery nor any other change in the arrangements of the work, but that the whole difference is due to the increase in the personal efficiency of the workmen under the influence of the shorter hours. It will also be observed that the degree in which this personal improvement is effective

<sup>1</sup> Webb and Cox, *The Eight Hours Day*, p. 55.

did not decline with the successive reductions, but is quite as high, or rather a little higher proportionally in the second reduction than in the first.

The hours of bookbinders were very irregular and often very protracted before 1867, but the Factory Act of that year introduced a most beneficial change. The normal hours of the trade were reduced from 60 to 54 a week, and publishers, authors, and printers had all learnt to be more prompt, early, and punctual with the delivery of their work, so that the bookbinding firms were able to spread their work better over the year; and there was so much less time lost, that both male and female operatives, working by the piece at the old rates, earned more money on an average, many of them much more, than they ever earned before.<sup>1</sup> One of the forewomen said that under the old long-hour system the women used to do hardly enough in the last hour of the day to pay for the gas, and when they worked overtime their earnings, after the first few weeks, would fall to the same amount they used to earn without overtime.<sup>2</sup>

In the plain and fancy box-making business, which is a season trade and used to be marked by great irregularities in the hours of labour, the Act of 1867 has had the same results. "Both employers and employed are satisfied with the Act; the work is more regularly distributed throughout the year; there has been more of it; and there has been further a substantial advance

<sup>1</sup> *Factory Report* for 1877, p. 27.

<sup>2</sup> *Ibid.*, p. 14.

in the earnings. One firm largely engaged in this manufacture informs me that in 1867, while working 13 and 14 hours a day, the earnings of their workpeople were on an average a shilling a week less than in 1876, when working under the restrictions of the Factory Act."

In 1872, as we are told by Lord Brassey, Messrs. Ransome and Sims, of Ipswich, the well-known agricultural implement makers, who employed at the time 1,200 hands, reduced the hours of work in their establishment from  $58\frac{1}{2}$  to 54 hours a week. "But," says Lord Brassey, "the men working the engineers' tools have so successfully striven to protect themselves against the risk of diminution of wages from the nine-hours movement when employed in doing piecework, that the power employed to work the tools has already been increased from 12 to 15 per cent. With regard to vice work, all of which is done by hand, the operators execute quite as much as in the previous long hours. In the blacksmiths' shop, where there is a great variety of work, the men are in every case making equally good wages on the old piecework prices. The same remark applies to the iron-moulders."<sup>1</sup>

Messrs. Watts and Manton, button manufacturers, Birmingham, reduced their hours in 1866 to  $8\frac{1}{4}$ , from 8 A.M. to 6 P.M., with an hour and a quarter off for meals, and Mr. Baker, factory inspector, reported in

<sup>1</sup> Brassey, *Work and Wages*, p. 147.

1870 that the results had been eminently satisfactory to that firm, who said that the habits of the workpeople had changed both at home and in the workshop, that they were more industrious and intelligent, and they added: "It is remarkable that while they work fewer hours they earn more money." "We have found," they said, "that longer hours mean listlessness and loss of power."<sup>1</sup>

The shirtmakers of Londonderry work longer hours in winter than in summer; in winter from 8 A.M. to 7 P.M., and in summer from 8 to 6; but the factory inspector states in his report for 1869 (p. 226) that the Londonderry shirt manufacturers acknowledged that their hands did as much work and earned as high wages in the shorter day they worked in summer as in the longer day they worked in winter. Metal working is a very different kind of occupation from shirtmaking; yet the same or even better results have been experienced in it. Mr. Guest, a Sheffield cutler, informed the Children's Employment Commission of 1862, that he gave his men the Saturday half-holiday eighteen years before, stopping work at 1 o'clock on that day, and that he believed the amount of work done in the week, instead of being diminished by the loss of time, was increased through the rest which was given, and which he found his men spent rationally and well, many of them, for example, in their gardens. He added that the best proof of the profitability of the half-holiday

<sup>1</sup> *Factory Inspector's Report*, 1870, p. 44.

was that all the other large works in the town had adopted it.<sup>1</sup>

Similar results are reported from America. Messrs. Pratt and Co., rolling mill manufacturers, Buffalo, U.S.A., shortened their hours of work in 1876, on account of bad times, from 10 to 9, and found "that the same number of men performed about as much work in 9 hours as they had done in 10, especially in the short days of autumn and winter," and that "the reduction of hours produced a visible effect on the characters and habits of the *employés*." Mr. D. Bell, machinery and boiler maker in the same town, had run his works 9 hours in winter and 10 hours in summer ever since 1842, and as the result of his forty years' experience, says he had never found shortening the day in winter to make any effect on the amount of production. In 1885, there were seventy-four successful strikes for shorter hours in the State of New York, chiefly in the building, iron, and tobacco trades. They wanted 8 hours and got 9, and the Bureau of Statistics of Labour of that State mentions in its report for the following year, that whereas the employers had calculated beforehand that these strikes, if successful, would force them to employ 1,003 more hands, and increase their pay-roll to correspond, they found on actual experience that shortening the hours had made no difference whatever. They employed no new hands

<sup>1</sup> *Appendix to Fourth Report of Children's Employment Commission*, p. 50.

and paid nothing more in wages. The old staff merely did the same work in the shorter day, and earned the same wages.<sup>1</sup> The cigar factory of M. Van Vrumingen, in Gouda, reduced its hours from  $11\frac{1}{2}$  to  $9\frac{1}{2}$  in 1889, and produced more cigars in the years 1890 and 1891 than it ever produced before.

Now all this story of the gradual abbreviation of the day of labour in the chief manufacturing countries of the world, showing, as it plainly does, how each successive reduction from 14 hours to 12, from 12 to 10, from 10 to 9, has always been met by unexpected resources contained in the mind and muscles of the labourers themselves, naturally suggests the question whether those resources may not again respond to a fresh reduction, and whether the best and most profitable limit for the day of labour may not be found below the nine-hours line. Numbers of eight-hours experiments have now been made in a considerable variety of trades, and these we shall proceed to consider in the next chapter.

<sup>1</sup> *Report for 1886*, p. 657.

## CHAPTER II

### THE EIGHT-HOURS DAY AT WORK

THE eight-hours day has not, so far as I am aware, been yet tried by direct experiment in any of the great textile industries in this country or even in Victoria. The linen lappers of Belfast work on an average 48 hours a week, the rule with some firms being 56 hours and with others only  $45\frac{1}{2}$ , but linen lapping—folding the cloth after it is woven—is more a department of warehouse than of factory business. Manufacturers seem, however, to be approaching the eight-hours limit, as Mr. Mundella and others approached the nine-hours limit, by tentative experiments during slack seasons, and Mr. Prior, the factory inspector, mentioned in his evidence to the Labour Commission the case of one of the largest textile manufacturers in his district, who had reduced the working hours of his factory during the slack seasons and the winter-time to  $49\frac{1}{2}$  a week—two spells of  $4\frac{1}{2}$  hours each five days of the week, and one  $4\frac{1}{2}$  hour spell on Saturdays—and who announced that if he obtained from that arrangement



the increased attention to work which he hoped for, he would make the arrangement his permanent rule. The result of this experiment has not been made known; but so long ago as 1844, Mr. Greg, a large cotton manufacturer, accidentally discovered that when his mills were running only four days a week in a slack season, his men often produced five days' quantity and earned five days' wages; that is to say, in four days of 12 hours each, or 48 hours a week, they did quite as much, in consequence of their longer rest, as they used to do in five days of 12 hours, or 60 hours a week.<sup>1</sup> This experience is not uncommon in many trades, and employers are frequently surprised to find the measures they have taken for keeping down their stock defeated by the zeal of the workmen to keep up their wages. Mr. W. A. Darbishire, slate quarry owner in Wales, thinks as much can easily be done in 8 hours as in 10, because he always finds when he puts the quarry on short time during bad trade, and works five days in the week instead of six, the total production is never diminished, and is sometimes even increased; and Mr. E. A. Young, Lord Penrhyn's agent, has had precisely similar experience in the quarries with which he is connected.<sup>2</sup> Mr. Young attributes the whole of this result to the increase of zeal on the part of the men to prevent any diminution of their previous earnings, but the influence of the extra day's repose

<sup>1</sup> *Shaftesbury's Speeches*, p. 118.

<sup>2</sup> *Labour Commission Report*, Group A, Qu. 9077, 16788.

must not be overlooked. For many of these quarrymen earn no more than three shillings a day, and have therefore every inducement to increase their wages in ordinary times if they could do so by increase of zeal alone. But the phenomenon only occurs in seasons of short time, and seems to point to the conclusion that the quarrymen are doing their maximum when working five days a week, and naturally do no more when working six.

Shipwrights work 52 or 53 hours in summer and only 48 in winter, but both at Portsmouth and on the Clyde they are reported to do quite as much in the week in winter as in summer, in consequence, it is said, of the weather being colder.<sup>1</sup> Boot-clicking—cutting the uppers of the boots out of the skin according to pattern—is entirely done by hand, and requires some planning so as to get the greatest number of pairs out of the material. It is therefore a much lighter occupation than any of those I have just mentioned, but the same thing happens in it. Mr. Green, secretary of the National Union of Boot Clickers, states that the clickers in the Jewish shops, which are open only five days a week, do as much in their week of 48 hours as the Christian clickers do in their week of 54 hours.<sup>2</sup>

In mining, eight hours or less was the old English standard for the working-day, and more than a third of the collieries of England have returned to that standard again. We have therefore much experience of the

<sup>1</sup> *Labour Commission Report*, A, Qu. 21564, 24405.   <sup>2</sup> *Ibid.* C, 15027-37.

effect of a shortening of the day to that limit in this great industry. The hours in the South Yorkshire mines were reduced to 8 in 1858, and Mr. J. Normansell, secretary of the South Yorkshire Miners' Association, who was working in the mines at the time of the reduction, stated to the Committee on Mines in 1866, that more was got in that district in 8 hours than in many other districts where they wrought 12 and 14 hours,<sup>1</sup> and that the men earned more in the 8 hours than they previously did in the 12, because under the long hours both the men and the overseers were careless and sluggish.

"There appears to be more energy on the part of the men and more energy on the part of the stewards, and all concerned. For instance, if a break-down takes place in South Yorkshire there is the greatest pains taken by the manager to put it right at once, because he knows the men will stop at 2 o'clock. They appear to be more brisk, and to go about their work with a spirit that will spur them on all round."<sup>2</sup>

In a later answer, he explained more fully the point about the break-down in the machinery.

"Formerly there did not seem to be any one there that appeared to be the least anxious to get the repairs done in order that the work would go on. I have known cases where we have wasted an hour or two hours about such a thing before it has been made secure again. One consequence of reducing the hours of labour has

<sup>1</sup> Qu. 3067.

<sup>2</sup> Qu. 3068.

been that each and every one in the employment of the masters, that is to say deputies and so on, have used more exertion to get a break-down set to rights soon, so that the work might come out quicker. They used to say then, 'Oh, the miners will work it up by stopping 12 or 14 hours,' but when we came to only 8 hours then the exertion was greater, and the difference was made up. Every one seems to try to get out the work sooner, because the hours are short, and there is less sluggishness about it."<sup>1</sup>

The Secretary of the Coalmasters' Association of South Yorkshire gave exactly the same account of the effect of the shorter hours to Mr. J. M. Ludlow in 1860, except that he attributed it largely to another cause, though one of a like nature. He stated that since the South Yorkshire collieries, within the preceding twelve months, introduced the eight-hours day, the production of some of the largest of them was greatly in excess of what it used to be when the men worked 12 and 13 hours a day, and the principal reason was that "the young and improvident as a general rule had two or three days' spending and drinking, what they called pleasure, during the early part of their 'pay' (time of employment), because they knew they would have the opportunity of working all the hours God sends in the later part to fetch up lost time."<sup>2</sup>

This result was not obtained, it is true, at all the collieries of the district. Mr. J. Chambers Thorncliffe

<sup>1</sup> Qu. 3151. <sup>2</sup> *Social Science Association Report on Trade Societies*, p. 45.

informed the Committee on Mines in 1866 that instead of getting anything like this increase of product from the reduction of hours, the output of his colliery was reduced in about the same proportion as the hours.<sup>1</sup> Now on this it is necessary to make only a single remark. Of all the possible results of so great a reduction of the hours of labour, this reduction of the output in the same proportion as the hours is the least natural, and really constitutes in itself evidence that there was some defect in the external arrangements and management of that particular colliery which prevented the natural operation of the shorter hours on the working energies of the men from having due course. It would really not be reasonable to attribute the reduction of output at the Thorncliffe colliery entirely to a shortening of hours which increased the output in the other collieries of the district. The true cause must have lain elsewhere, possibly in some inferiority in the machinery of haulage, for it is very generally admitted that hewers can do as good a day's work in 6 or 7 hours at the face as they can do in any longer stretch, though they may not be able to get it out for want of some better arrangements for winding. Lord Brassey mentions that although miners worked 12 hours a day in South Wales and only 7 in Northumberland, Sir George Elliot, M.P., found the cost of getting coals at Aberdare 25 per cent. higher than in Northumberland.<sup>2</sup> The quick stroke of the northern miner is proverbial,

<sup>1</sup> Qu. 12083.

<sup>2</sup> *Work and Wages*, p. 144.

and when Mr. A. Macdonald, M.P., the miners' agent, told the Coal Commission that no miner could work more than 8 hours a day for 6 days a week, Sir George Elliot said, "If he works as men in Northumberland and Durham work, I quite agree with you."<sup>1</sup> The quick stroke comes only with the shorter hours, and it produces better results at the day's end than the slow and intermittent stroke natural to the long day.

Eight hours from bank to bank is the colliers' general ideal but the Durham hewers had their hours reduced in 1872 to 7 from bank to bank, and seem in  $5\frac{3}{4}$  hours at the face to do very much the same day's work they did before 1872 in  $6\frac{1}{2}$ . We cannot, indeed, get much accurate light on the effect of this reduction from official returns, because the official returns give no very trustworthy statistics of the number of men employed before 1872, and tell us the annual production per man without stating the number of days wrought. But Sir J. W. Pease has given us some figures of one of his own collieries which are not open to these defects, and which show us that the reduction of hours made no material difference on the output. The men took more days play for a few years after 1872, but when they wrought they turned out about as much in the day, for though the figure is slightly less, it ought to be remembered that the number of hands was slightly increased in 1872, independently of the shorter hours, by certain require-

<sup>1</sup> *Report*, Qu. 4652.

ments of the Mining Regulation Act; and this increase of hands would necessarily make the average individual production seem less. With that explanation, here are Sir J. W. Pease's figures. The men, for reasons of their own, chose in 1872 to work 14 days fewer in the year than they did in 1870 and 1871, but their average product per day when they wrought was 5·85 tons in 1870, 5·77 tons in 1871, and 5·70 tons in 1872.<sup>1</sup> Mr. Lindsay Wood states the average for all Durham. In 1871 with hewers working 6½ hours in the day and 9·2 days a fortnight, the output per man was 1,097 tons; in 1872, with hewers working 5½ hours a day and 9·1 days a fortnight, the output was 1,016 tons.<sup>2</sup> The system of hewing was the same. Machinery plays little or no part in that work, and the drill, which has come in during the last ten years and saves the hewer some twenty minutes time in the day, was not in use in 1872 at all.

Indeed, so far as hewing is concerned, coalowners never seem to make any objection to the eight-hours day for underground labour; their difficulties all lie with the winding. Shorter hours have generally necessitated some rearrangement and improvement of the winding system of the pit, and that has often been attended with considerable expense as well as trouble. Mr. J. Connel, representing the Fife coalowners, admits that the Fife miners do as much work now under their

<sup>1</sup> *Report of Committee on Coals of 1873*, Qu. 4237.

<sup>2</sup> *Ibid.*, Qu. 3629.

eight hours system as they did before under a ten-hours one, but says the owners were obliged to go to the expense of better haulage machinery.<sup>1</sup> Mr. G. B. Forster mentions that when two hours were taken off the day of mining labour in Northumberland in 1872 it made no odds to the output, but it became necessary to increase the powers of the pit to get out the coal that was hewn, and the cost of producing coal was increased by the engines, horses, and increased staff of hands needed for this purpose.<sup>2</sup> And the eight-hours system was tried in a Monmouth mine and given up, not because the miners could not hew as much in the day as before, but because the owners could not keep the roads open.<sup>3</sup> The difficulty always lies with the transport of the coal not with its production. In Durham the owners say the eight-hours system would make a second shift of boys necessary for the drawing, and that there are no boys to be had, while in the Midlands the usual excuse is that the present winding machinery is inadequate to the task that would be required from it under shorter hours, and some owners even venture to say it would be quite impossible to introduce better machinery. Impossible seems scarce the word to use of the improbability of modern technical appliances, and though many owners were obliged to introduce better machinery, little harm would probably be done, even to themselves, for there is reason to fear that Professor Munro is right in inferring

<sup>1</sup> *Labour Commission*, A, Qu. 13743-8.

<sup>2</sup> *Trade Depression Commission*, Qu. 11691.

<sup>3</sup> *Labour Commission Report*, A, Qu. 5362.



that the present drawing arrangements in many mines are deplorably defective. Improved machinery is thus no doubt often needed in any case, but however that may be, it seems to be undisputed that with adequate arrangements for the transport of the coals, the hewers will produce as much in 7 hours at the face as they have ever done in the longer day formerly in vogue.

Similar observations have been made abroad. M. C. Grad states that, according to the President of the Corporation of Miners in Germany, miners there attain their maximum productivity with eight hours effective work, and that when temporary prolongations occur the product is only augmented to some extent for the first three or four weeks, and after that it begins to fall off till no more is got in 10 hours than was got before in 8.<sup>1</sup> This statement receives some general corroboration from the remark of Dr. Oldenberg in his article on the "Westphalian miners' movement" in the *Jahrbuch für die Gesetzgebung*,<sup>2</sup> that it had been proved by important experiments in tunnelling and mining labour that an eight-hour shift was more profitable than either a twelve-hour or a six-hour one, adding that it is inexplicable how eight-hour, ten-hour and twelve-hour shifts should exist in Saxony side by side in the same industry and compete against one another in the same market, if the longer shift had any advantage worth speaking of over the shorter.

<sup>1</sup> *Revue des deux Mondes*, 1877, p. 132.

<sup>2</sup> N. F. xiv., 320.

It is true the recent experiment in the Government coal-mines of Westphalia has not been completely successful. The miners' hours were reduced in 1889 from 10 and 11 to 8 at the coal-face, and the *Reichsanzeiger* reported in February, 1891, that the result was a falling off of 10 per cent. in the output. The output of coal per shift in 1888-89 was 1,072 tons, while in 1889-90 it fell to 919 tons. But then, had the fall been in proportion to the loss of time, the figures would have been 750 or 850 tons, and there is reason to think that some other circumstances have co-operated to produce the fall, for it is said that a further decline of 5 per cent. has taken place since 1890, and there has been no further reduction of hours to account for that decline.

In the Cleveland iron mines the men send out more stone in the day now in their 8 hours under ground than they did formerly in their 12 hours, and this result is in no way due to the introduction of machinery, for machines are not used in more than five mines out of the twenty-three, and the increase of production has occurred in all, whether machines are used or no. But the increase was not obtained without improvement in the drawing arrangements. The owners put in more horses and more waggons to accelerate the carrying, and this seems to have in some way also lessened the time the hewers required to spend in loading the waggons. The chief part of the result however has been no doubt due in these Cleveland

mines, as elsewhere, to greater personal exertion on the part of the miner himself. "He works very much harder than he used to do," says Mr. J. Toyn, who has himself wrought in these mines for thirty or forty years. "His working time in the face is seven hours, and he can certainly work better, brisker, and freer in the seven hours than he could before."<sup>1</sup> But Mr. Toyn attaches so much importance to the assistance rendered by the improved drawing arrangements, that he thinks any further reduction of hours would now probably reduce the output too—unless, he ought to have added, to complete his argument even from his own point of view, the drawing system could be again improved at the same time. However this may be, the shorter hours have at all events produced a more efficient worker. Mr. Toyn says he himself used formerly to be often off work altogether through exhaustion; but though he works much harder now, he keeps always fitter to work hard again, and though the change compelled the owners to improve their methods of drawing, they do not complain of the cost, and have never suggested any return to longer hours.

Engineering is one of the industries in which the economic superiority of the eight-hours day of labour has been most decisively proved by experiments, made with men working by the day, and without any change whatever, either in the character or the speed of the machinery employed, or any other

<sup>1</sup> *Labour Commission*, A, Qu. 1047, 1072.

change except the reduction and rearrangement of the hours of work. Engineering is a trade in which beyond most trades overtime is systematically wrought at night, and good time is as systematically lost and wasted during the day. Overtime at night means naturally unpunctuality in the morning and dawdling in the afternoon. Nature takes its revenge in breaks of five minutes here and a quarter of an hour there all through the set time of work, and these interruptions spontaneously cease under arrangements of hours more in accordance with the arrangements of nature.

Messrs. S. H. Johnson and Co., of Stratford, London, reduced the hours at their works some five years ago from 54 to 48 a week, paying their hands the same day wages as before, and they get more work out now than they got then, without any increase whatever in the cost of production. They made a wiser arrangement of hours. Instead of running from 6 to 5 with two breaks for meals, they now run from 8 to 5 with one break, and the result is threefold. First, the men have more energy for work in the morning, coming after breakfast instead of before it, so that while an hour's work in the morning was formerly worth to their employers 50 per cent. less than an hour's work in the afternoon, there is no difference now. Then the men are saved one walk home and back again in the day, and that also economises their energies, so that they are now, say Messrs. Johnson, better men and better animals than they were

before. Second, the men are more punctual in the morning and more unremitting in work during the day. In their first three months working of the eight-hours system only two cases occurred of men being behind time, and though this standard has not been completely sustained since then, the regularity of the attendance has been satisfactory to the firm, and it is enforced by a forfeiture of wages proportioned to the loss of time. Then, a quarter of an hour is saved by dispensing with breakfast hours, because that time was always lost formerly in getting ready for going away and getting ready for work after coming back. The third effect is perhaps more remarkable; its origin is at least less obvious. The firm say they have not only a more zealous, but a more intelligent body of men, and this growth in intelligence under the influence of shorter hours is remarked in many other instances. Then to all this there must be added many incidental savings in gas and fire and the like, which need not be further considered at present, though they are not in themselves unimportant.<sup>1</sup>

The experiment of Messrs. William Allan and Co., of Sunderland, has attracted more attention than this of Messrs. Johnson, but its nature and results are precisely analogous. It was on the 1st January, 1892, that this firm (of which Mr. W. Allan, M.P., is head) reduced their hours from 53 to 48 a week—8½ hours

<sup>1</sup> Hadfield and Gibbins, *A Shorter Working Day*, p. 134-140.

four days a week,  $8\frac{1}{2}$  hours a fifth day, and  $4\frac{1}{2}$  on Saturdays. The hands come at 7.30 after breakfast, and work two spells five days a week, and one on Saturday. On starting the eight-hours system, Mr. Allan proposed to his men that if they would meanwhile consent to a reduction of 5 per cent. in their wages, he would after six months raise their wages again and pay up the arrears if he found the new system did not increase the cost of production or affect the output. At the end of the six months Mr. Allan found the output increased rather than diminished, and raised the wages again and paid up the arrears. Mr. Allan was himself surprised at the results he got. "Paradoxical as it may seem I get *fully more work* out than formerly; in fact I am surprised at how the work is going ahead, having believed, like so many employers, that there would be a corresponding decrease in output."<sup>1</sup> Mr. Harrison, his manager, was even more surprised to obtain this result in machine work as much as in hand work. "A certain quantity of work, he said, used to be turned out by each machine in a day's work under the nine-hour system. Incredible as it may seem to some, he states that the same amount of work is turned out by the same machine while worked for 8 hours only." The explanation he gave was simple: the men wasted less time and wrought with more energy.<sup>2</sup> One of Mr.

<sup>1</sup> Hadfield and Gibbins, p. 144.

<sup>2</sup> *Newcastle Chronicle*, Sept. 7, 1892.

Allan's chief inducements to try the system was the hope that it would reduce the irregular attendance of his men in the mornings, and in this it has proved entirely successful. Mr. Allan told the Labour Commission that under the former arrangement of hours, the morning attendance was so irregular, that the average time wrought in his works did not exceed 48 hours a week even then, and that the improvement is so great that he gets the same number of hours worked now. "Since instituting the 8 hours we have no sleepers whatever," and unlike Messrs. Johnson's workmen, Mr. Allan's were as punctual after twelve months as at the beginning of the experiment.<sup>1</sup> The men are in better health, they do more work, and the cost of production has therefore been less.<sup>2</sup>

Messrs Short Brothers, shipbuilders, Sunderland, began the eight-hour system—or at least the 48 hours week—at the same time as their neighbours, Messrs. W. Allan and Co., and they have precisely the same story to tell. After eight weeks' trial they write Mr. Hadfield that they are already satisfied the new arrangement of hours will not increase the cost of production; that they have every reason to believe their production will be more; that the week before they wrote their wages bill was higher than it had been any week during the previous year, showing that the men were working better and more regularly; and

<sup>1</sup> Qu. 6862, 6865.

<sup>2</sup> Qu. 6869.

that they had scarcely one absentee under the new arrangement, whereas under the old, 20 per cent. of their men lost the first quarter every morning.<sup>1</sup> Their men were mostly paid by the piece, Mr. Allan's by the day, but the effect of the new system was the same in both works. After five months' experience of it they wrote Mr. J. O'Neill in May: "We have very great pleasure to say it has more than met our expectations. We are now paying considerably more wages and consequently turning out more work. We are now satisfied it is to the interest of every employer in our trade, as well as to the interest of the workmen, to adopt the eight-hours day as arranged by us."<sup>2</sup>

It may be thought that employers would now hasten to adopt a system which has been proved by three such signally successful experiments to redound to their own advantage as well as the welfare of their men, but as yet only one or two engineering firms have done so, *e.g.* Mr. James Keith, who has found his men doing as much work as they did before, and Messrs. Mather and Platt, of the Salford Iron Works, whose experience has not yet been made known, and the examination of engineering employers before the Labour Commission gives no strong reason to hope for any spontaneous concessions from that quarter. Captain Noble, managing director of the great firm of Sir William Armstrong and Co., said that for his own part he had never considered

<sup>1</sup> Hadfield and Gibbins, p. 145.

<sup>2</sup> *Labour Commission Report*, A, Qu. 21204.



the eight-hours question yet as really a practical question, and that when the Society of Amalgamated Engineers had shortly before approached the General Association of Master Engineers, offering to make a concession of wages if they were granted the eight hours, the Association of Master Engineers thought even that reasonable proposal too outrageous to receive a moment's attention. "We told them," says Captain Noble, "we could hardly consider that that was seriously meant, and in fact we refused to consider the question of eight hours."<sup>1</sup> This attitude of stiff and unreasoning irreconcilability does not seem the most rational of attitudes in the face of the experiments that have been made, and we turn therefore with some interest to the evidence of a succeeding witness, Mr. A. E. Seaton, managing director of the Hull Shipbuilding and Engineering Co., who explains his reasons for disregarding these experiments. What are they? They are seven. First, Mr. Allan has not done anything at all; he has only imagined he has done something. "Mr. Allan is a poet, and poets draw on their imagination."<sup>2</sup> Forsooth, and what then are Messrs. Johnson and Messrs. Short? Are they also poets? Second, Mr. Allan has only had six months' trial of the shorter hours, and you cannot tell the result of an experiment in engineering work in six months. But Messrs. Johnson have had years of experience, and Mr. Allan himself has since found the same results after

<sup>1</sup> A, Qu. 25479.

<sup>2</sup> A, Qu. 25596.

twelve months as he had found after six. Third, making men breakfast before work will not answer, because many men cannot eat a meal immediately after rising, and many landladies will not rise and cook a meal so early, and the men will have to work longer on an empty stomach under the new arrangements than they did before under the old. But no objection on that score has been made by either employer or employed in the three works where the thing has been actually tried, and as the men have done more work, and yet at the same time enjoyed better health than they did before, this inconvenience from indolent landladies and from the caprices of individual appetite seems to have been practically neutralised. Fourth, even if Mr. Allan's story is true, it proves nothing but what everybody knows. "I think all Mr. Allan has proved is this, that the Amalgamated Society of Engineers and others that he has to do with can do in eight hours what in the last few years they have been doing in nine. I could have told him that before he tried the experiment, because I know from our own books they absolutely do so. What he has proved is that by giving the men shorter hours and encouraging them in various ways, he has got them to work harder for him than they would for me."<sup>1</sup> If he has proved that he has proved everything that is in question, and one can only ask in wonder, if Mr. Allan got his men to work harder by shortening his hours and encouraging them in other

<sup>1</sup> A, Qu. 25598.

ways, why should the same means not be successful in Mr. Seaton's hands? Fifth, Mr. Allan has succeeded, because he has a small shop. Mr. Allan's shop is not quite so small. He employs between 300 and 400 men, quite sufficient for an experiment like that.

Sixth, "I think Mr. Allan may have got an extraordinary special kind of men. . . . I do not know, but I think it is probable."<sup>1</sup> It would have been better and more practical to have ascertained the facts first, before pronouncing so cavalier a condemnation; but in this case it really makes no odds in the world whether the men were picked men or were not picked men; the important and decisive thing is that they were the same men, and that with the same machines and the same materials they produced more in the day under the eight-hours system than they did under the nine. The eight-hour workman is "an extraordinary special kind of man" as compared with the nine-hour workman. Seventh, "It stands to reason that . . . as machinery in nine hours will turn out  $12\frac{1}{2}$  per cent. more work than in eight hours the loss must be 11 per cent. in going from nine back to eight. . . . Nothing will convince me that a lathe in eight hours will do what it can do in nine, if it is properly worked on both occasions. And that is why I do not agree with Mr. Allan." That is the last and in the witness's own mind evidently the weightiest reason for rejecting the

<sup>1</sup> A, Qu. 25602.

credibility of Mr. Allan's story, and one is relieved to find that it is only a very old acquaintance whose fallacy has been exposed hundreds and thousands of times by the evidence of hard fact. A machine will, of course, not do as much in 8 hours as in 9, if it is worked with equal perfection on both occasions—that is the merest of truisms; but what experience has shown in Mr. Allan's case—and what experience has shown in thousands of other cases before his—is that the same man doing his best under a short-hour system will often turn out as much in the day and more from the same machine than he could when doing his best under a long-hour system. What Mr. Seaton thinks so incredible is exactly what Mr. Allan's manager states explicitly to have been done; the same amount of work was turned out by the same machine and the same men in 8 hours as was done before in 9. I shall discuss this subject more fully later on and show that the intervention of automatic machinery, so far from discounting the influence of personal efficiency, often enhances it to a remarkable degree, and never in any case neutralises it altogether. This and other truths of kindred simplicity seem often strangely hid from the wise and prudent, from the practical and experienced heads of the world of labour, to whom we naturally look up as the chief authorities on the subject. But it is hard that hundreds of thousands of working men should be denied reasonable leisure because a few employers will not believe a thing possible which is

RECEIVED

being done every day. Mr. Allan seems not unlikely to prove right in saying the employers will never adopt the eight-hours system till they are compelled by legislation, and in the case of engineering, unlike mining, legislation could not force employers into any fresh expenses or do any worse harm than brush away their idle prejudice a little roughly.

To these objections from the side of the employers must be added another raised from the side of the workmen, not to the eight-hours day itself, but to its immediate introduction in the engineering trade—the objection that from the great prevalence of systematic overtime in that trade it would be practically too great a descent to take at one time, to fall from 9 hours with regular overtime to 8 hours without it. It is best in any event to proceed with caution, but it is certainly very doubtful whether the world has ever gained anything by systematic overtime, and whether men would not do quite the same amount of work from year's end to year's end if it were abolished altogether. Mr. Bowling, one of the factory inspectors, remarks that he was struck with the frequency with which employers said to him overtime was utterly unprofitable, and nobody can read any of the reports of commissions on labour or trade questions without being struck with the same circumstance. Incidental overtime may be unavoidable in the engineering trade, but the persistent overtime now habitually wrought might probably be abolished with positive benefit to production.

Last spring the English Government, showing for once an enterprise above that of private employers, introduced the eight-hours day by way of experiment at the cartridge factory at Woolwich Arsenal, and although no details of the results of that experiment have been published, it is understood that as much, and even more work was done by the men in the day after the reduction of hours than was done before it. At any rate the experiment proved so successful that Mr. Campbell Bannerman, to whom the credit of it is due, announced in Parliament on the 5th of January the intention of the War Department to adopt the eight-hours system as the general rule in all the public ordnance factories. "The result of my inquiries," he said, in reply to Mr. John Burns, "has been to satisfy myself and my colleagues that the conditions and circumstances of those factories and the nature of the work done in them are such as to admit of the reduction to 48 hours a week, or an average of 8 hours a day, with advantage both to the public service and to the men employed, and I will direct that the change shall be brought into operation as soon as the necessary arrangements can be made." This reform of hours in the ordnance factories will probably affect 16,000 workmen, but Mr. Campbell Bannerman stated on the 11th of January that "it was not anticipated that any additional workmen would be required as a result of reducing the working hours at the War Office factories to 48 per week, save in exceptional cases. A

---

careful comparison had been made of the results obtained elsewhere, and the conclusion (confirmed by the Department's own experience) had been formed that any increase in wages would be compensated for by a saving in fuel, &c., by the increased energy of the workmen, and lastly, by the prevention of lost time owing to the suppression of the breakfast hour."

Mr. W. Woodall, M.P., the Financial Secretary to the War Office, who had much to do with the initiation and execution of the experiment, said in a speech to his constituents that "he pledged himself as a man of business experience that he had not recommended these important changes until he had satisfied himself that they could be carried out not only with benefit to the workmen, but with advantage and even perhaps some saving to the nation in various ways," and he added that he had completed arrangements for the further extension of the eight-hours system to the army clothing factories. The new scheme came into operation at the ordnance factories on the 26th of February.

The adoption of the eight-hours day by the War Office must give a great impetus to the eight-hours cause, and fruits already begin to appear. In the first place the enterprise of the War Office has naturally stirred up the sister department, the Admiralty, to the serious contemplation of the introduction of the eight-hours day into the Government dockyards, which indeed would not involve any great change since the present hours in the dockyards are only 51 a week.

Then Kynoch and Co., ammunition manufacturers, Birmingham, made immediate arrangements for the reduction of the hours in their factory on the 8th of February from 54 to 48 a week—8½ hours a day for the first five days of the week, and 4½ hours on Saturday. Two-thirds of their hands are piece-workers, and the rates for piece-work are to remain unaltered, but the wages of the day-workers are to be raised from 8*d.* to 9*d.* per hour, so that their earnings for the week will be the same as they were before the change. Hardly a week passes now without evidence appearing in the newspapers of the impression made in the country by the Government experiment and the disposition it has created to give a fair hearing and even a fair trial to the eight-hours cause.

The experiment itself, moreover, is in its results a virtual counterpart of a similar experiment made in the arsenals of the United States as long ago as 1868, though the American experiment unfortunately seems to have been made mainly to answer a party purpose before an election, and was suffered to die, in spite of its success, after that purpose had been served.

In 1868 the eight-hours day was introduced by law into all Government works in the United States, but the superintendent of the works immediately reduced the men's wages to correspond, that is, they were paid the old rate per hour. This was done in the Springfield armoury, amongst other places. The *New York Tribune* quotes the first report of the commandant of that armoury on the effect of the new experiment. He



states that the file workers managed to make, under the old tariff of wages, quite as much per day under the eight-hours as under the ten-hours system, and that he believed the day workmen had worked harder and more faithfully under the eight-hours system than under the ten-hours. The foreman of the milling department reported, in August 17, 1868, that the average earnings of 1,212 piece-workers under the ten-hours system in the month of June previous was 2.60 dollars, whereas in July, under the eight-hours system, they earned 2.88 per day. In other words, they did considerably more work in 8 hours than they used to do in 10. In the water shops the foreman reported that the average earnings of 23 piece-workers in his department were 3.12 dollars a day under the ten-hours system, and 3.13 under the eight-hours, while in the filing department the piece-workers did not make quite so much as their old earnings just at the beginning of the new order of things, but they were already making as much, and even more, before the report was written.<sup>1</sup>

I shall deal with the experience of the eight-hours system in Victoria in a separate chapter, but a Sydney case may be stated here. The iron trades employed in the Australian Steamship Company's works at that place got the eight-hours day in 1858 on condition of accepting a proportional reduction of wages, but after a year's trial the company found that between the better work they obtained during working hours and the

<sup>1</sup> *Massachusetts Labour Bureau Report* for 1872, p. 250.

saving of gas, oil, and other items of expense, they could afford to pay the men the old ten-hour wages, and did so.<sup>1</sup>

Hadfield's Steel Foundry Company in Sheffield reduced their hours in 1891 not indeed to 48, but to 51 in the week from 54, and have found as much work done in the week as before, and even more. "In fact," says Mr. Hadfield, "they (the engineering foremen) consider the same jobs were turned out in less rather than more time, and several cases of this were instanced."<sup>2</sup> The experiment has proved, says Mr. Hadfield, "eminently satisfactory," and has not added in any way to the cost of production. "The management on its side has perfected better methods, and the workers on their side have shown more intelligent interest in carrying out the work to be done," and the result is due to the co-operation of these two factors. It has imposed apparently neither any additional expense on the employers nor any severer tension of exertion on the employed, but has come from more intelligent organisation on the part of the one and more intelligent interest on the part of the other. The change has been attended, as such changes often, indeed usually, are, by a remarkable improvement in the punctuality of the workers, and this alone goes far to account for the result. "Taking the comparison haphazard, viz., for the months of January, 1891 and 1892, in the former case out of

<sup>1</sup> *Massachusetts Labour Report*, 1872, p. 248.

<sup>2</sup> Hadfield and Gibbins, *A Shorter Working Day*, p. 149.

about 500 men, 72 averaged half an hour late each morning during the month, 22 a commencement of work at 9 A.M. (instead of 6 A.M.). In January, 1892, the whole of the men, except a daily average of 19, were in at work punctually at the starting time—6.30 A.M.”<sup>1</sup> There were different kinds of labour employed in the foundry—engineers, smiths, fettlers, founders and general labourers—but the results were the same in all departments.

Some branches of the Sheffield hardware manufacture run 8 hours and even less, but I am not able to produce any evidence comparing results of the eight-hours with other systems in that trade. Several interesting reports come, however, from the hardware industry in America. Messrs. L. and J. J. White, hardware manufacturers, Buffalo, ran their works 10 hours a day from 1842 to 1870, and 8 hours a day from 1875 to 1879, and found that the change made very little apparent difference in the amount of the product; while a cutlery firm in New York, Messrs. Weed and Becker, state that though their nominal day of labour is 10 hours they never actually run more than 8 because the work is exhausting, and they find the men turn out more product in 8 hours than in 10.<sup>2</sup>

In the glass-bottle-making trade the present rule is 9½ hours, but most of the employers are desirous of introducing eight-hour shifts, and one of them, Mr. D. Rylands,

<sup>1</sup> Hadfield and Gibbins, *A Shorter Working Day*, p. 148.

<sup>2</sup> *United States Census for 1880*, Weeks' Report, p. 165.

actually introduced that system in 1887, but he has since given it up for the following reason: "Because the men got so that they could make as many bottles in the  $7\frac{1}{2}$  hours as they used to make in the 9 hours. In fact some made more, and the furnaces are not large enough to give a sufficient quantity of glass for the men working at that tremendous rate."<sup>1</sup>

It may be explained that though Mr. Rylands says 9 hours here, he had already stated the hours of effective work, on the two-shift system, exclusive of meal time, to be  $18\frac{1}{2}$ , or  $9\frac{1}{4}$  hours per shift. On the eight-hours system the time of effective work was  $7\frac{1}{2}$  hours. So that we have men here obtaining a reduction of  $1\frac{1}{4}$  hours, and coming—not at once apparently, but in process of time—to do as much work and more than they had done before. Under the long-shift system the men were not suffered away for dinner, but were obliged to eat it hastily in front of the hot furnace, and to set to work again instantly it was eaten. This led to universal indigestion, and was probably as unfavourable to good work as it was to good health.

The English glass bottle manufacturers are generally anxious to adopt the eight-hours system, but the men at present oppose the change from a recollection of a case where it had been made and caused a serious fall in wages. But the industry is well adapted for eight-hour shifts. It is a number of years since a glass manufacturer near Dusseldorf, M. Heye, reduced the hours of

<sup>1</sup> *Labour Commission Report*, C. Qu. 30366.

his workers from 10 and 11 to 8, and got as much from them in the day after the reduction as before it.<sup>1</sup>

Chemical works, engaged in the manufacture of bleaching powder, salt cake, vitriol, caustic soda, black ash, bichromate of potash, &c., constitute another branch of industry well adapted for eight-hour shifts, because the process of production requires to go on continuously, night and day, Sunday and Saturday, and because in most departments the work, though not perhaps in itself arduous, is yet attended with grave danger to health, arising from the deleterious gases the labourers are obliged to inhale. They run constant peril of getting "gassed" as they call it, that is, of bronchial inflammation, or even sudden suffocation, or of inflammation of the eyes, or in some departments of ulcerations, which often take away the septum of their nose or leave "chrome holes" on their hands or arms, and they are more susceptible to the gas in the last two or three hours than in the rest of the day. In the most trying department, the bleaching powder department, where the packers work with a "muzzle" of thirty folds of flannel tied tight round their mouth and neck, and the act of breathing becomes itself an exhausting labour, their hours have always been short, 6 hours a day in England and 8 hours a day in Scotland; but in most of the other departments the work has usually been done by two shifts working each 12 hours a day seven days a week. True, they are

<sup>1</sup> *Revue des Deux Mondes*, lxxxiv., p. 132.

not engaged in active labour during the whole 12 hours. Though the process of production is continuous, the personal labour of the operatives is very discontinuous. A caustic worker explained the condition of affairs to the recent Chemical Works Committee of inquiry. "We may have," he said, "an hour or an hour and a half with nothing to do scarcely, and sometimes 3 hours with nothing to do, and then 4 or 5 hours hard work, and then again 3 hours with scarcely anything to do except to keep our eyes about us." Figures were given to the same committee by the United Alkali Company relating to three separate works of theirs in the St. Helens district, and showing that the proportion of the men's time on duty which they spend in actual work varies considerably not merely between one department and another in the same works, but between one worker and another in the same department. The hours of attendance in the vitriol department of the Globe Works are the same as in the vitriol department of the Greenbank Works—84 a week—but the time spent in actual labour at the former is only 30 hours, while in the latter it is 50. The proportion seems to be larger in the other departments, but still even in this vitriol department the labour is so injurious that most of the works on the Tyne and the St. Rollox Works in Glasgow had long conducted it by three eight-hour shifts, even before they thought of extending the same system to other departments. The employers have found the system answer

so well that they are now rapidly making it the general rule. The Labour Commission was informed that all the chemical works on Tyneside except one have now adopted the three eight-hour shifts, though it would appear from the appendix of the report of the recent Chemical Works Committee that the old twelve-hours system is still retained in one or two departments in each of the four Tyneside works mentioned there. But however that may be, the Labour Commission witness, Mr. T. Steel, made another statement, more important for our present purpose, and that was, that when the eight-hours system was adopted, about the same product was still obtained in the day as used to be got under the twelve-hours system, though in some cases this result was partly due to the assistance of improved machinery.<sup>1</sup> Messrs. Gaskell, Deacon and Co., Widnes, have also substituted eight-hour for twelve-hour shifts in their works, and the wages earned are very little less, and the men enjoy better health and comfort.<sup>2</sup> Messrs. Brunner, Mond and Co., Northwich, made the same change four years ago, and found it answer so well that though they at first reduced the wages of their men to some extent they have since raised them again to the old rate. They have lately stated to the Home Office Departmental Committee on the health of chemical workers, that though they now pay the same wages for 8 hours work as they formerly paid for 12 hours work,

<sup>1</sup> *Labour Commission Report*, C, 21602.

<sup>2</sup> *Ibid.*, C, 22419-25.

the cost of labour per ton of alkali is no more now than it was then, and that this result is due partly to improvement in the apparatus used, effected at considerable cost, and partly to "the increased efficiency of the men due to their better health and spirits." The doctor had to attend only half as many men in the year 1893 as in the year 1889, and what is equally remarkable, drunkenness, very common four years ago, has largely disappeared. Though the shift in these chemical works is 8 hours a day, the men work seven shifts in the week, since the work continues during Sunday, so that the week is a 56 hours week, not a 48 hours one. But it is very remarkable to find that this great reduction of 28 hours a week—from 84 to 56—has been accomplished without making any difference to the labourer's weekly output of sufficient significance to tell on his wages. It seems the more remarkable after reading how confidently various members of the recent Chemical Works Committee declared to the working men they were examining that the thing could not possibly be done. "You see," said Mr. Fletcher, alkali inspector, to one witness, "the chambers would not produce any more in the three shifts; that is when you have got the eight-hours shift the chambers will produce exactly the same with the three eight-hours shifts as with the two twelve-hours shifts." And Mr. Richmond, the secretary of the committee, said to another witness that he did not see how it was possible to get more work out of the pots with three eight-hour



shifts than with two of 12 hours, because the pots were always in operation. But if we believe Mr. Brunner, who speaks from actual experience, that is the exact thing which has been done, for, as these gentlemen themselves state in their report, the result is attributed by Mr. Brunner "partly to the increased efficiency of the men due to their better health and spirits." I shall have occasion presently to discuss this question of the relation of personal efficiency and machinery more fully, but meanwhile this case may be taken to show that the amount of production is never a mere matter of pots or chambers, but is always quite as much, and generally more, a matter of mind and muscle. One thing is obvious at a glance; in so unhealthy and uncomfortable a trade, the loss from interruptions and waste must be much smaller on the three-shift than on the two-shift system. Mining experts in Germany have calculated that in mining three eight-hour shifts make effective use of 94 or 97 per cent. of the 24 hours, while two twelve-hour shifts make effective use of no more than 83, and sometimes no more than 67 per cent. Supposing that for the moment to be correct, then it is easy to see that a gain of 30 per cent. on the day's production might be worth more to the employers than the wages of even the 50 per cent. more hands which the substitution of three shifts for two might be thought to require, and in the case of Messrs. Brunner, Mond and Co., it must be remembered that the change did not involve an addition of 50 per

cent. to their staff but only  $12\frac{1}{2}$  per cent. They employed nine men after the change for every eight they employed before it.<sup>1</sup>

Sir Charles Tennant and Co. (now the St. Rollox Alkali Co.) have been working on the three eight-hour shift system for the last 25 years in the vitriol department of their works on the Tyne and for a shorter period in the same department of their works in Glasgow, and in both cases with such complete satisfaction that they have now decided to extend the system to all the other departments. The mechanics and artisans (masons, plumbers, bricklayers, coopers, &c.) employed in the work were put on the eight-hours system shortly before the new year, and in the case of these trades the eight-hours day means a 48 hours week, for they do not work on Sunday. The furnacemen have since received the eight-hours day, in their case a 56 hours week. The wages of all classes have however been reduced slightly—by something like 10 per cent.—in consequence of the shorter hours, at least in the meanwhile.<sup>2</sup> Messrs. Burroughs, Wellcome and Co., manufacturing chemists, London, carry on a different kind of work from the chemical manufacturers already mentioned, and carried it on until a few years ago on the nine-hours system and with a single shift, but a few years ago they introduced the eight-hours day and say that the amount of work produced is very nearly, if not quite,

<sup>1</sup> *Daily Chronicle*, December 1, 1891.

<sup>2</sup> *Glasgow Echo*.

as great as it was under the nine-hours system, though none of their hands are paid by the piece, and that the cost of production has not materially increased.<sup>1</sup>

Similar results have been obtained under the eight-hours system by Messrs. Caslon and Co., typefounders, London. In 1890 they had a meeting with their employees and stated that if the latter could send down the same quantity of work as they did before, the firm would shorten their hours and still pay them the same wages. The men have done so, and they are not paid by the piece. The hours are not 48 a week, but 50 a week, with this proviso, however, that the firm credits each man with his two odd hours and allows him to add them up and take an equivalent holiday on full pay.<sup>2</sup> A good deal of attention has been attracted by the eight-hours experiment of Mr. Mark Beaufoy, M.P., jam and vinegar manufacturer, London. Having already abolished overtime in his works and found the abolition advantageous, Mr. Beaufoy in 1889 adopted the eight-hours day because he thought the early morning hours of work were as unprofitable to him as the late overtime hours in the evening. "The hours before breakfast were almost wasted, because the men were too cold and hungry to set to work with a will." Mr. Beaufoy changed the hours accordingly from 6 to 5 with two breaks, to 8 to 5 with one break, and 8 to 12 on Saturday—a week of 45 hours—and he paid the same wages. After one

<sup>1</sup> Webb and Cox, *Eight Hours Day*, p. 255.

<sup>2</sup> *Ibid.*, p. 257.

whole year's experience, he says: "During this year, from September, 1889, to September, 1890, we did more business than in almost any year I can remember, but not one hour of overtime was worked." The staff was the same, except for the addition of three or four gate-porters and watchmen, and the wages seem not to have been paid by the piece.<sup>1</sup>

The London building trades have now obtained the eight-hours day, but if the employers' accusations be true that their workmen have been deliberately restricting their production for the last twenty years, the experiment will have little value as a test of the effect of shorter work-hours on the product of the work. Evidence, however, is not wanting of the economic value of eight-hours shifts among masons. Lord Brassey relates a striking case. "During the construction of the Trent Valley line of railway," says he, "immense efforts were made to complete the work in the shortest possible time, and in order to expedite to the utmost degree the completion of the station at Atherstone, two shifts of men were employed in the building, each of them working 8 hours a day. It was found that each shift, although working for only 8 hours, did more work in a day than other men employed for the full number of hours, which at that time constituted a day's work, viz., 10 hours a day."<sup>2</sup>

Herr Freese, window-blind maker at Hamburg and

<sup>1</sup> Webb and Cox, *The Eight Hours Day*, p. 262.

<sup>2</sup> *Work and Wages*, p. 147.

Berlin, having first abolished Sunday labour and overtime and found it advantageous, then reduced his regular hours of work to 9 a day in 1890, and finding that again advantageous, tried the experiment of 8 hours a day in his Berlin factory for two months last year, and with such satisfactory results that he adopted the eight-hours system as a permanent arrangement in 1892. His particular arrangement of the hours is from 7 A.M. to 5 P.M. with half an hour off for breakfast at 8.30 and an hour and a half off at noon. He employs various kinds of skilled labour, but the result has been the same with all alike. Of eight joiners working by the piece at the same rate, four earned less in the 8 hours in 1892 than in the 9 hours in 1891, and four earned more, and the total average earnings of the eight were more. Of four fitters, two earned less and two earned more, the average being a trifle less. Of four painters and lackerers, two earned less and two earned more, the average being a little more. Of two locksmiths and tinsmiths both earned less, nearly a third less, but this is ascribed to bad trade. Of the three machine-room hands, two earned more and one earned less, and the average was a little more. Of four hands in the sewing and repairs room, two earned more and two earned less, the average being more. The majority of the hands therefore earned better wages in 8 hours work than in 9; when they earned less there was no instance in which the decrease was as great as the reduction of hours,  $11\frac{1}{10}$  per cent., and the general

average of earnings was higher. More work, therefore, was done in an eight-hours day than in a nine-hours one, and the result is attributed to greater punctuality of attendance and greater energy in working. The improvement in punctuality was attested by the marked diminution in the fines for lateness in the morning and for absence on the Monday. Formerly one of the workmen said Monday was the brother of Sunday, but now their brotherhood is dissolved. The old men found it more difficult, however, to keep up the more energetic rate of work than the younger men, and probably some of the cases of decreased earnings may be due to that cause. The machines wrought in the machine-room were circular saws and fluting planes, quite as automatic, one may presume, as Mr. Seaton's lathe, but the improvement in the product was more remarkable in the machine work than in the hand work, though it is stated the speed of the machines was not increased and could not be for fear they should get too hot. To this it must be added that Herr Freese says that while the quantity of the product has increased the quality has in no way fallen off, and that he has made no inconsiderable saving in gas and fire. Along with this experiment of Herr Freese may be mentioned the case of a cabinet-making works in New York, which adopted the eight-hours system in 1885, and the foreman of which reports that on looking over the pay-roll in the two principal shops for the months of August and September, 1885, under the ten-

hours system, and for the same months in 1886 under the eight-hours system, he found hardly any difference noticeable, and that some men did even better.<sup>1</sup>

In the United States for the last half-century there have been always a great many establishments running only 8 hours a day. In fact, the proportion of eight-hour establishments to the total number of establishments in that country was exactly the same half a century ago as it is now, and they include a great diversity of trades. In Massachusetts, for example, where the general rule is 10 hours, there is scarcely a single industry in which some of the shops do not stop at 8 hours, although there is only one trade in the State in which 8 hours is the general rule—artificial tooth-making. The eight-hours day is adopted in 5 out of 31 establishments for the manufacture of arms and ammunition; in 17 out of 255 shipbuilding yards, in 35 out of 547 printing and bookbinding firms, in 36 out of 217 tobacco factories, in 28 out of 2,582 metal-working shops, in 30 out of 2,257 boot and shoe factories, in 10 out of 3,334 building firms, in 3 out of 1,009 carriage works, and so on in 32 different branches of industry. It seems an obvious conclusion that when so many establishments have found the way to make short hours pay in the face of the overwhelming competition of their long-hour neighbours, there can be no essential reason why the rest should not make short hours pay likewise.

<sup>1</sup> *New York Statistics of Labour Bureau Report*, 1886, p. 663.

The eight-hours day has thus been tried in a very large number and variety of industries with striking success, and the lesson taught by these experiments will not be found in the least impaired by a consideration of the few cases in which the experiment is said to have failed, or to have only partially succeeded. Messrs. Green, M'Allan and Feilden, printers and engravers, London, say they tried it for seven months, and found it financially a failure.<sup>1</sup> But they seem really never to have tried the eight-hours system at all. Overtime was wrought as regularly in their office as in other London offices, and as they state, more overtime in proportion under the short day than under the long one. They say themselves that the average hours of London compositors are nearer 60 hours a week than 54, and if their week was really a 60 hours week, what did it matter that it was nominally a 48 hours one? The only change made was that they would have to pay overtime rates for another hour in the day, and that the men would be apt to dawdle during ordinary time in order to postpone the work till the better paid overtime.

Others in the same or similar lines of business have not found shorter hours answer so ill. Messrs. Thomas Bushill and Sons are printers as well as bookbinders in Coventry, and when they reduced their hours in 1892 from 54 to 50 a week—not quite to the eight-hours limit, but close on it—they experienced no

<sup>1</sup> Webb and Cox, *Eight Hours Day*, p. 259.



diminution of production whatever.<sup>1</sup> Mr. Bushill informs me by letter that now after eighteen months' trial the results continue to be as favourable as at first, and that though the old rate of wages has been maintained there has never been any increase in the cost of production. On the matter of overtime, which occasioned difficulty to Messrs. Green, M'Allan and Feilden, Mr. Bushill's experience is striking. After remarking that some employers fear an eight-hours day would only lead to the employees working more overtime, he says: "In actual fact we find a greater disinclination to overtime than before. This is probably because a man leaving work at 6 o'clock has an evening before him, whereas if he works till 7 it is only a matter of an hour or so of leisure." That is a very probable explanation, and various facts recorded in the present volume go to confirm it. And to show the increasing value which work-people are led to set upon their longer evening of leisure after a little experience of it, Mr. Bushill mentions that a fortnight before he wrote, one of his foremen came to him with the self-sacrificing proposal "that the foremen should be paid their level wage, week by week, without any addition for overtime." That meant a probable loss to this worker of several shillings a week. He said however, "If the foremen receive nothing for their overtime it will be a natural

<sup>1</sup> *Labour Commission Report.* Commission as a whole, 5896-8. See also T. W. Bushill's *Profit Sharing and the Labour Question.*

incentive for them to get the work done somehow in the ordinary hours."

The Missouri Labour Bureau reports that the eight-hours day was introduced among book printers in that State without causing any diminution in the tale of daily work done.<sup>1</sup> The lithographic printers of Manchester, working 9 hours a day, got their hours reduced a few years ago by  $2\frac{1}{2}$  a week, and Mr. E. D. Kelly told the Labour Commission that the reduction made very little difference in the amount turned out in the day.

Gas-works are an industry in which eight-hours shifts have been very largely substituted for twelve-hour ones. From a statement of Mr. Thorne, the secretary of the Gas-workers' Union, it appears that the eight-hours shift is now the most common rule in the provinces, and even before 1886 it was already very common there. The Board of Trade Wages Census of that year mentions as many as twenty-three gasworks conducted on the eight-hours shift system in the few districts selected for the purposes of that census, and they employed 1,104 men, as compared with 2,831 working still on the twelve-hours system in the same districts. The average wages were only a few pence a week lower in the eight-hour works than in the twelve-hour ones, but that is of course in the case of gas-works no index to their relative production, inasmuch as gas is always a monopoly and any rise in the cost of producing it can be easily transferred to the price. Since the

<sup>1</sup> Quoted in *Massachusetts Labour Bureaus Report for 1881*, p. 448.

establishment of the Gas-workers' Union, the eight-hours system has been adopted in a number more of the provincial towns, and also in London. But the results have been curiously diverse. Before stating these it may be well to recollect that in gas-stoking on the twelve-hours system the men usually work an hour and rest an hour alternately, or in some places work an hour and rest fifty minutes, so that 6 or 7 hours of effective work is all that is ever performed. Shortening the hours to 8 means mainly shortening these alternate intervals of rest. Many stokers—at some works the majority—prefer retaining those long breathing spaces, just as they prefer working on Sunday, because they would not know what to do with leisure if they got it, and they have not infrequently petitioned for a restoration of the twelve-hours system, or welcomed the restoration with satisfaction when it was proposed. In gas-works the day's task is a fixed quantity prescribed or agreed upon beforehand—so many retorts—and in making the arrangements for the reduction of hours, the men were able in most cases to secure at the same time an express reduction in the number of retorts they were required to do, and this reduction varied in different works. The results therefore varied, but in this industry, unlike the others, they varied by pre-arrangement.

At Sheffield apparently the tale of retorts was not reduced, for it was stated by Mr. Livesey at the Labour Commission, and corroborated by a local witness, the

representative of the Sheffield Gas-workers' Union, that the gas-workers of Sheffield had compressed nearly as much work into their 56 hours a week as they used to do in their 84.<sup>1</sup>

What can be done in Sheffield can be done in London, and possibly would be done, if gas were a commodity of which the London producers could be exposed to the competition of Sheffield. As things stand, however, none of the London gas companies have been able to get the same results out of the shorter day as the Sheffield company has done, but the reduction of work has been in no case nearly proportional to the reduction of hours, and has been in all cases largely due to other causes of disturbance than the shortening of the hours, causes which are said to be now disappearing. The worst results were obtained by Mr. Livesey's own company, the South Metropolitan, which in one-third less time got one-sixth less work. Then the Gaslight and Coke Company got one-seventh less, and the Commercial Gas Company got only one twelfth less.<sup>2</sup> This comparison is based on the number of retorts filled in the day before and after the reduction of hours, but one of the Commercial Company's stokers, Mr. A. Linton, said that though they were filling fewer retorts in the day, they were nevertheless going through as much work and even more than formerly, because they were running three scoops to the retort now, and were only running two scoops to

<sup>1</sup> C. Qu. 23519, 23550.

<sup>2</sup> C. Qu. 23953-9.

the retort before. They were actually handling more coals in the day than they did on the long shift, for though there might be only 66 retorts now in place of 72, 216 scoops were carried in place of 202.<sup>1</sup> The manager of the Commercial Company, Mr. W. E. Jones, tells a different story. The whole experiment has cost the Company an addition of 48 per cent. to their wages-bill, but of course this has not all come from the mere diminution of 33 per cent. in the time of work. It has come largely from the increase simultaneously made in the labourers' wages and the exceptional rates immediately afterwards granted for Sunday work. Still a good part of the loss is attributed by him to the decrease in the quantity of work done, but he gives no exact estimate of the amount of the diminution, and much of the diminution was, according to his own account, due to temporary perturbation. "The retorts began to be less well filled with coals than they had been under the older system, chiefly because the men were not so orderly and obedient." The same complaint is made by the other gas companies. Mr. Livesey, of the South Metropolitan, says their men did not keep their promise to work well after the reduction in their hours, and absolutely refused to do certain parts of their accustomed work; and the engineer of the Gaslight and Coke Company states that their stokers at the time of the change of hours, for divers reasons, did not do their best, but had begun to do

<sup>1</sup> C. 25428-35.

better now. The dock strike occurred immediately after the eight-hours concession was made in the London gas-works in 1889, and the stokers were extremely excited by what was going on outside, and would often throw down their tools and refuse to work longer on account of some supposed grievance. The natural inference from all this seems to be that if the men had been in an undisturbed state of mind, and were doing their best, the slight diminution of one-twelfth in the Commercial Company, or even the larger diminution of one-sixth in the South Metropolitan, might have been made up without any serious difficulty. In Darwen, where the cost of gas was raised one sixth after the change from the twelve-hours to the eight-hours system, the increase of cost was caused, not by the shortening of hours itself, but by the fact that the stokers refused at the same time to do certain kinds of work they had been contentedly accustomed to do before. They refused to clean and scurf the pipes and to carry their tools, and clamoured for a number of other changes of the same kind.<sup>1</sup>

The eight-hours shift replaced the twelve-hours shift for a time in one of the Cleveland blast furnaces, but it was not meant to be a permanent arrangement, being adopted to meet some special temporary conditions of the trade, and was given up, it is said by one of the Labour Commission witnesses, on account of "bad facilities of working," the nature of which he leaves

<sup>1</sup> *Labour Commission*, C. Qu. 26050.

unexplained.<sup>1</sup> But all the furnaces in West Cumberland adopted the eight-hours shift on 1st October, 1890, and after a year's working Mr. Walls, President of the National Association of Blast Furnacemen, and agent of the Cumberland branch, said the change had proved satisfactory both to employers and employed, though it caused to the latter a loss of one-fifteenth of their wages, and to the former an increase of an eighth in the labour cost of the product.<sup>2</sup> Mr. Williams, a Middlesborough ironmaster, calculated that the third shift in blast furnaces must, even with certain reductions of wages, add at least a third to the cost of the product, but here in West Cumberland it has added only an eighth, so that the change is much less expensive than employers presuppose; the reason being—what employers so often fail to take into their calculations—that the men work proportionately harder in the 8 hours than in the 12, and that they are more seldom off duty through overwork. Under the twelve-hours system—which means 84 hours work a week—the employers are obliged to have what is practically a spare shift of men engaged to take the places of those who fail from overwork, and though these men are only paid for the time they actually serve as substitutes, still odd work of some kind must be found for them at other times about the yard, especially when trade is brisk, so as to keep them within call, when they may be wanted. Under an eight-hours system these by-turn

<sup>1</sup> A. Qu. 14169.

<sup>2</sup> A. Qu. 14425.

hands—who are of course inferior workers to the men whose places they take—become less necessary, and thus a second saving is effected through the improvement in the working capacity of the ordinary hands effected by the shortening of their hours.<sup>1</sup> It is true that in the case of these West Cumberland blast furnacemen the recoupment from this source has not been so great as has occurred in many of the other trades we have been considering. In a third less time they do about a fifth less work, but it must be remembered that that was the first year after the experiment began, and that blast furnacemen are precisely one of those over-worked trades in which the full effects of the shorter hours are only obtained after a period of time. There seemed to be every reason to expect better results next year, because the men were showing decisive signs of both physical and moral improvement. Their temperance societies had increased in membership 50 per cent. during the year, and the provident and trade societies had spent 20 or 25 per cent. less on sick allowances, both results being attributed to the relief from the undue fatigue from which all had suffered before. How far this evident recovery of the vital energies necessary for work would have gone cannot now be said, because before another year came the Cumberland blast furnaces had stopped working—not in consequence of the eight-hours system, for the twelve-hours ones stopped as well as the others—and with men earning no wages the

<sup>1</sup> A. 14163.



process of physical improvement could not be expected to continue. So far therefore as the problem of the effect of shortening hours on production is concerned, this case of the West Cumberland blast furnaces must be treated as merely an unfinished experiment. It proves conclusively enough that the third shift will not add 50 per cent. or even 33 per cent. to the cost of production, but it leaves practically undetermined the question whether in blast furnaces, as in so many other branches of work, it can be introduced without any ultimate addition to cost at all.

Neither the experience of the West Cumberland blast furnaces nor the experience of the London gas-works therefore furnishes any valid evidence against the general conclusion which the whole history of the short-hours movement and the special history of the eight-hours experiments seem strongly to suggest, viz., that if masters and men both do their part aright, we can in the great run of occupations get as good a day's work done regularly in 8 hours as in any longer working day. This suggestion is strongly supported (1) by the large number of experiments in which the eight-hours system has succeeded compared with the small number and indecisive character of those in which it has failed; (2) by the great variety of the occupations in which it has been successfully tried; (3) by the number of the cases in which production has been even increased by it, and sometimes without piece-work or any other special spur. In this last respect the record of the

eight-hours day is really more striking than the record of either the ten-hours day or the nine-hours day.

There are some occupations of course in which the work does not admit of being compressed into shorter time or in which its compressibility does not depend on the will or exertions of the workman. A watchman is on duty for a fixed time and cannot put the required amount of watching into a shorter term, because presence for the specified time is of the essence of his task. An omnibus conductor or railway guard cannot conduct as many omnibuses or trains in 8 hours as in 12 because the times of running of the omnibus or train are fixed independently of the conductor or guard by his employers. A barber could easily compress as much work into 8 hours as he now does in 12 if his customers would come to him at his convenience instead of their own, but if he adopted short hours he very probably might not do as much work, simply because his customers might not find it convenient to crowd in to him in greater numbers in the shorter time. Even in classes of occupations like these, shorter hours would often be attended by important economies. The work or service would often be better done. A watchman would not watch so well if his hours were too protracted and might cause loss to his employer thereby, and both the public and the railway companies would gain from a shortening of hours which diminished the accidents traceable to over-fatigued railway servants. But on the whole in such

occupations shorter hours would generally mean increased cost, and the burden would have to be borne by employers or workmen or the public, or, as it was in the case of the eight-hours day in the Huddersfield tramways, by all three together.

Occupations of this character, however, are, comparatively speaking, not numerous, and employ but a small fraction of the working class. In the great mass of the staple industries of any country, on the contrary—the industries requiring physical or mental exertion—it is possible by improvement in the personal efficiency of the labourer to compress more work into any definite space of time than was done in it before; and positive experience can safely be said to encourage rather than discourage the hope that most men will do as good a day's work in 8 hours as they can do at all. This hope will appear more and more reasonable as we consider the diverse sources from which the improvement in the working powers of the labourer has come in the past, and the unexhausted reserves of personal efficiency on which we may still call in the future. That we shall take up in the next chapter.

## CHAPTER III

### THE RESERVES OF PERSONAL EFFICIENCY

THE increase of product per hour, which we have seen so generally accompanying the reduction of the hours of work, has in some cases been aided by the improvement or speeding of the machinery in use, but the aid derived from this quarter has been after all surprisingly small, and in all cases much the greatest part of the effect, in many cases the whole of it, must be ascribed to the improvement and speeding of the personal agent in production. I have quoted the case of cotton mills in Lancashire, of which the details are given by Mr. Horner and in which out of £22 worth more work done in the ten hours only £5 worth, or one-fourth of the result, could be ascribed to increased speeding of machinery, and the remaining £17, or more than three-fourths of the whole, came from closer attention and greater accuracy of work on the part of the operatives. In Switzerland, the usual increase of speed in the machinery was only  $2\frac{1}{2}$  per cent., while the

increase of product per hour was 8 per cent. Change of the machinery itself was of course always much less frequent than change in the speed of the machinery, so much less frequent that it would not affect the general result. The change from which that mainly accrued was a change in the physical and mental energies of the workpeople themselves. Indeed in many factories, and in some whole trades, no other change had taken place.

Various expedients, no doubt, were often practised for the purpose of whipping up these energies to their utmost exertion. Piece-work may have been substituted for day-work, or overlookers been paid a premium on the output; but after all is told, there remains the great fact without which no amount of whipping would have been effectual, that under the shorter hours the workpeople themselves brought with them every morning a greater store of energy to respond to such stimulation, and that it flowed out more freely and readily into their labour than before.

This is shown by two facts: the effect took place, often strikingly, under day-work without any new stimulation at all; and it often took place only gradually, and after a time, even when piece-work or other expedients had been adopted from the first. There was no piece-work in Messrs. Allan and Co.'s shop, or in Messrs. Johnson's, and there is no piece-work among the masons and outdoor trades of Victoria, whose great "go" and energy strike most visitors from the old country, and are said by resident

observers to have perceptibly increased since the shortening of their working day. In such cases the improvement is spontaneous, perhaps even insensible. Many instances might be given of the gradual nature of the effect. The Hon. W. Gray, Treasurer of the Atlantic Mills, Lawrence, U.S.A., states that when the hours of these mills were reduced in 1867 from  $10\frac{1}{2}$  to 10, there was for the first month a diminution of product by 4 or 5 per cent., although they increased the speed 4 per cent. and introduced piece-work, but the loss was eventually converted into a gain without any other change in the machinery. The manager of a Massachusetts carpet mill reports of the reverse policy of lengthening the ten-hours day by running overtime for a season, that the production increased for the first month after the overtime began, but then the men grew listless, the quantity of their output fell off, the quality of the goods deteriorated, and by the third month the books showed that the mill was doing no more in the day with 10 hours and overtime to boot than it did before in the 10 hours alone. The imposition of the strain takes time to tell to the full; the relaxation of the strain does the same.

In such cases the industrial capacity seems to recover a certain spring, as if out of relief from previous overpressure; but, as will presently appear, it is an error to imagine that relief from overpressure is the only source, or even the chief source, of that improved industrial capacity of the workpeople which enables

them to do as much work in the short as in the long day, and to contend on that ground that a further reduction of hours cannot be attended with the same result except in the trades that still remain overworked. Of course you may define a trade to be overworked merely because that particular result happens in it, merely because the workers in it are found able to sustain their production after their hours have been shortened; and in that case it is a mere truism to say that the effect in question will only take place in overworked trades. But the contention I am now disputing would limit the effect to trades already known before the experiment to be suffering from positive and even extreme overwork. This seems to be the opinion of Professor Marshall, who holds that the adoption of an eight-hours day would generally diminish production where recourse was not made to double shifts, except in two classes of cases: first, "the extreme cases of overwork we have been considering"—that is, apparently cases where "the hours and the general conditions of labour are such as to cause great wear and tear of body or mind, or both, and to lead to a low standard of living"; and second, the case of "the lowest grade of honest workers," who, though "few of them work very hard," have so little stamina that they are really overstrained by the work they do. But the ordinary English engineer, or mason, or shipbuilder, cannot be thought to belong to either of these categories, nor surely can the *employés* in Woolwich Arsenal, and yet they are

all found doing as much work in 8 hours as they did in 9, and sometimes even more. The same thing has been now known to happen in a great variety of industries; it is a much more general phenomenon than Professor Marshall appears to contemplate; and it arises—and arises oftenest, I think—from other causes than the extreme overpressure either of well-fed or of ill-fed workers to which alone he is disposed to ascribe it. It has really come less frequently from the removal of any physical burden than from a general quickening of the intelligence, and it has come less frequently from relieving strain of any kind than from hauling in slack. It has often been a mere matter of method and arrangement, a suppression of irregular habits of work, so that the shortening of the nominal working time was really converted into a lengthening of the actual time at work. Indeed this circumstance has given rise to an objection of the very opposite character to that which we have now been considering. While the first set of objectors say the beneficial effect of shorter hours was due to the removal of overstraining, and cannot be expected to happen again, because there is little overstraining left to remove, this second set of objectors say the effect came from an increase of strain and intensity of work, and cannot be expected to happen again, because any further increase would break the health of the workers. Both objections may be considered and answered together.

In the first place, while it is true that under the



short-hours system men work harder while they are at their work than they do under the long-hours system, it is also true that short hours and hard work impose less strain on the body than long hours and dawdling, especially if the hours are passed in a hot, or dusty, or poisoned atmosphere, such as many trades are obliged to work in. The increased exertion during work-hours has always been balanced, and more than balanced, by the restorative effects of the longer period of repose or recreation in good air. While the men do as good a day's work as they did before, they improve in health or vigour. After the Ten Hours Act was six months in operation Mr. Horner reported that the workpeople had, many of them, told him they enjoyed better health than they used to enjoy ; and their story was confirmed by managers and overlookers, who said there had been less sickness in the mills than before, one manager, who was personally unfriendly to the ten-hours day, expressing great surprise to find how much better his men were in health, and how much more vigorously they worked, although their wages had sunk so low that many of them got scarce a bellyful of food.<sup>1</sup> The effect of the Act of 1874 only repeated this experience of the Act of 1847. The textile workers again intensified their exertions, till they did their old day's work in the shorter term, and their intenser exertions have again in no way hurt their growth in bodily health and vigour. The Labour Commission heard many

<sup>1</sup> *Factory Report*, Dec. 1848, pp. 16, 48.

complaints from textile workers of the injurious effects of the overheated or dusty atmosphere in which they were obliged to work, and of the insufficient sanitary arrangements of factories, but there was only one serious complaint of overpressure—the complaint of Mr. Birtwistle of the system in vogue in Burnley and North Lancashire generally of driving the workpeople on by overlookers paid a poundage on the product—and even this complaint was not made on the ground that it had inflicted any injury on the health of the workers, but on the ground that it had raised the standard of work to a point which workmen could not attain after they passed 50 or 60 years of age, and that this shortcoming was often made the occasion of their dismissal. The grievance really attacked seems to be rather the harshness of dismissing old hands when they are getting past their best than any excess of strain, which is blamed for putting them past their best sooner than would otherwise happen. Moreover, the complaint is confined to the cotton weavers, and even among the cotton weavers to those of North Lancashire. Cotton weaving is done, as Dr. Bridges reported in 1883, in a tropical and relaxing atmosphere, loaded with deleterious dust from the materials handled, and aggravated within recent years by the process of sizing. Startling facts were stated to the Labour Commission on local medical authority as to the unhealthiness of the occupation, and Dr. Ogle has shown from the Registrar-General's reports and the census that the rate of

mortality among Lancashire cotton operatives generally is considerably higher than the rate of mortality among Lancashire miners. But the remedy for this seems to lie, not in relaxation of strain, which has not caused it, but more probably in shortening the time spent in that vitiated atmosphere, even though this shortening of the working time be accompanied with a certain increase of exertion in the work. The Lancashire cotton weavers, as it is, do not work so hard as the American cotton weavers, who work however in very much roomier and better ventilated mills; and their improved vitality, arising from another hour less in a bad atmosphere, and another hour more in a good one, would probably lead them insensibly to expend the increase of exertion required. Workers are never at their best in an ill-ventilated mill. Dr. Watts, of Manchester, says in his book on the Cotton Famine, that the Lancashire cotton operatives would always be willing to work in a well-ventilated mill for a lower rate of wages per piece, because they know they would earn more at the week's end there than in a badly-ventilated one. Cotton-weavers are comparatively well paid moreover, and well fed, and it is commonly among the ill-fed and weaker classes of workpeople that the higher pace of work under short hours seems to be most felt, and the response on the amount of production least complete.

That may be illustrated from a recent Scotch experiment. Messrs. Hay and Robertson, linen weavers, of Dunfermline, tried the 54 hours week instead of

the 56½ hours one for four months not long since, and were perfectly satisfied with the results to themselves, but they returned eventually to the old hours because many of the women complained of the severity of the strain they felt in the afternoons. The day had been divided into two spells of 4½ hours each, with a single break of an hour for dinner, and the complaint was that a spell of 4½ hours was too long on end. Some of the women said they did not mind the strain, and actually earned more wages in the shorter week; but others could not take their breakfast immediately after rising in the morning, and working their first long spell on an empty stomach, were not able to turn out their old quantity in the morning and did not recover their form in the afternoon. The question here is one between a nine-hours day of two long spells and a nine and a half hours day of three shorter spells, and the women in this particular factory seem on the whole to have preferred the latter as less trying to their strength.<sup>1</sup> In other cases we sometimes—not often—find work-people preferring a long and slow system of working, as a matter more of personal comfort than of health. Gas workers occasionally go back to the twelve-hours day because they like the alternation of an hour's rest with an hour's work, which it involves; but when they adhere to the eight-hours system and still do as much work in the day as they did before, neither their health nor their spirits suffer in the least. Mr. A. Linton,

<sup>1</sup> Labour Commission, *Report on Women's Labour*, p. 188.

for example, states that though the gasworkers of Poplar, where he is himself employed, work harder now on the eight-hours system than they used to do on the twelve-hours one, they work freer and brisker and like it better, because it gives them more recreative time.<sup>1</sup> That is the common, I may almost say the universal, experience of the effects of shorter hours. As far as they have yet gone, more strain has been taken off by diminishing the duration of labour than is put on by increasing its intensity to the degree necessary to compensate for the diminution.

Messrs. Brunner, Mond, and Co., who get about as much work from their men in 8 hours now as they used to get, before the reduction, in 12, write Messrs. Webb and Cox that "the effect on the health and physique of the men of this change has been most beneficial," and they supply some striking particulars to the Departmental Committee of the Home Office on the health of chemical workers. The figures of the sick club connected with the works show that during the summer quarter in 1889, before the introduction of the three shifts, the percentage of men who received sick pay was 7·1, while during the same quarter of 1893, after the introduction of the three shifts, the percentage was only 5·1, making a reduction of 28·32 per cent. In 1889 the men attended by the doctor amounted to 10·12 per cent. of the whole, but in 1893 it was only 5·1 per cent., showing a reduction of 49·6 per cent. Messrs. S. H. Johnson

<sup>1</sup> *Labour Commission Report*, C, Qu. 25425-42.

and Co. get even more work out of their men under the eight-hours system than they ever got before, and yet declare that they are now "not only better men but better animals."<sup>1</sup> Mr. William Allan, M.P., of Sunderland, noticed a decided improvement in the health especially of his apprentices, before his eight-hours experiment had been a year in operation, and found his observation confirmed by asking the apprentices themselves and their parents.

The rate of mortality among miners has fallen during the last thirty years, especially between the ages of 25 and 45, so that their working years are prolonged, and though other causes have helped this result, the exertion to keep up their product has at least not hurt it or them. The late Mr. A. Macdonald, M.P., miners' agent, said he could always personally do more work in 8 hours than in 10, because there always came with more protracted work a certain loss of power in the shoulder, and he added that he could say from personal observation that the South Yorkshire miners, who as we have seen turned out as much in 8 hours as they used to do in 12, had improved greatly in physical strength since they adopted the eight-hours system.<sup>2</sup> Indeed the rate of mortality among miners in this country observes almost a strict proportion with the customary duration of their working-day, being less in the short-hour districts than in the long-hour districts.

<sup>1</sup> Webb and Cox, *Eight Hours Day*, p. 159.

<sup>2</sup> *Coal Commission Report*, Qu. 4740.

Mr. J. Toyn says the Cleveland iron miners work much harder while they work since they have had their hours reduced to 8 from bank to bank, but they feel the effects of their work much less. Speaking for himself, he used to be often in former times so exhausted that he had to give up work for days together in order to recover; but that never happens now, although he is an older man. I have already mentioned and discussed the improvement in the health of the West Cumberland blast furnacemen after shorter hours.<sup>1</sup> Visitors to Victoria are always struck with the go and energy with which the outdoor labourers work, and local observers state that this ardour in work has increased since the adoption of the eight-hours day. These trades work for day wages, however, and might dawdle like other trades elsewhere if they chose without losing their weekly pay. The spirit they throw into their work seems to be spontaneously elicited, as if work had at last become an agreeable exercise rather than an exhausting burden.

But in the second place the improvement in production obtained under shorter hours is not obtained by working harder so much as by working better and more accurately. It is a fruit of the mind, of increased intelligence in working, not of increased physical exertion. For example, there is the factory mentioned by Mr. Horner, in which out of £22 worth more work done, £5, or only one-fourth of the increase of product,

<sup>1</sup> *Ante*, p. 92.

was due to the increase of speed in the machinery, and £17, or three-fourths, to the better workmanship of the operatives themselves.<sup>1</sup> Now the increase of physical exertion in this case—the increase of pace or rapidity of work—is of course set and measured by the degree of additional speed put on the machinery, and that accounts for only one-fourth of the result, the other three-fourths being the effect of more correctness and intelligence in the work. Mr. W. Glennie, an engineer, explained to the Labour Commission that the reason Messrs. Allan and Co. get as much work done in their eight-hours day as they got before in their nine-hours one is “not because the men work harder, but because they lay their mind to their work better and work more intelligently.” Messrs. Johnson, of Stratford, observe that their men have become more intelligent under the eight-hours system, and the same effect of shorter hours has been frequently remarked by other employers of labour. Indeed, intelligence and method are always the great reducers of strain, the great savers of labour ; and it is ever the unskilful stroke that uses up the strength most. Some of the employers say it is impossible for human hands to go faster than they are now going in English mills. Mr. Wates, of Leicester, for example, said to the Labour Commission that he could not imagine any women working quicker than the women in his factory at Leicester. “Any one,” he said, “who stands by our machinery from morning till

<sup>1</sup> *Ante*, p. 22.



night, or who goes in occasionally, will see that no sooner is one lot taken off than another is put on with the greatest possible rapidity.”<sup>1</sup> But it is not a question of working quicker; it is chiefly a question of working more correctly.

It is a common mistake to suppose that it is impossible for any improvement in personal efficiency to tell on the product of self-acting machinery, and that mistake is at the bottom of much of the opposition of employers to the proposal of an eight-hours day. Shorter hours, they often say, may perhaps be compensated by harder exertion in some branches of industry, but where the product is the result of the revolution of machinery, an hour's less revolving must mean a proportional diminution in the product. “It is not possible,” said a large manufacturer to the Labour Commission, “to match a machine running 9 hours a day against a foreign counterpart running 10 or 12.” “In our business,” said a jute spinner, “the whole goes by clockwork, and if there is a quarter of an hour of a stoppage there is a quarter of an hour's loss at the end of the week, it never can be made up.” “Nothing will convince me,” said a master engineer, “that a lathe in 8 hours will do the work it will in 9, if it is properly worked on both occasions.” “It is quite clear,” said Mr. David Dale, the chairman of one of the three sections of the Commission, in examining Mr. Tom Mann—“it is quite clear that in many branches of that trade

<sup>1</sup> Qu. 12601-3.

(engineering), for instance, men attending machines cannot produce as much in 8 hours as in 9"; and Mr. Mann, himself bred an engineer, answered, "While the speed of the machinery and the capacity of the machinery remain the same, they cannot."

It must be admitted that nothing does seem clearer before we examine into the facts than that such a thing is impossible, but nothing is better established by the facts than that it is done constantly every day. What can be nearer clockwork than a textile mill?—yet the Ten Hours Act stopped this clockwork in every mill in the country for 11 hours a week without making any material difference in its weekly product. In some mills the machinery was neither changed nor speeded, and yet it gave out the same quantity in 10 hours it used to do in 12, in consequence of nothing but the improved personal exertion of the workpeople; and in all the rest, while some small part of this result was due to increasing the speed of the machinery, much the greatest part was due to that same personal improvement, as I have shown in the opening of this chapter from the experience both of this country and of Switzerland. What occurred in every textile mill of England in 1848 is exactly what textile manufacturers are still assuring the Labour Commission to be an impossibility. Mr. Chamberlain in his business, as we have seen, found the same workmen with the same automatic machinery turning out more screws per hour after their day was shortened than they turned

out before. M. Freese mentions a similar result from the circular saws and fluting planes of his blind factory. In that very engineering industry in which Mr. Dale and Mr. Mann think such a result impossible, Mr. Allan's manager at Sunderland discovered, as he says to his great surprise, that the same men with the same machines produced as much and even more in 8 hours than they used to do in 9. And an eminent English iron manufacturer, who has tried in vain to get his men to adopt the eight-hours system, Mr. William Whitwell, stated to the Commission explicitly that "there may be two machines identically the same, and their results may be entirely different owing to the want of ability and push on the part of the man working one particular machine."

Our first false impressions on this subject, in which so many of us remain, come from simply failing to observe two things: first, that with the most automatic machinery in common use there is always plenty of room for the "ability and push" of the workman, of which Mr. Whitwell speaks, to tell decisively on the result; and second, that the short-hour workman is a being of more push and ability than the long-hour workman. Machines no doubt differ widely in the degree in which they dispense with personal supervision. After the Ten Hours Act it was found easier to make up the old product at the loom than at the spindles or the carding machine. But it was soon done even in spinning. Already in 1849 Mr. Horner mentions a

case (Cotton Mill L) where, though there was a considerable reduction at first, the difference was made up to some extent before the year was out at the self-acting mules as well as in the weaving; and chiefly he explains by the people sticking closer to their work. It must be remembered that there are many occasions of stoppage with the best machinery—to repair accidents, to knot broken threads, to take off work or to put work on—and every stoppage furnishes an opportunity for a bad workman to lose time and a good workman to save it. The one may stop the clockwork a quarter of an hour when the other would not stop it two minutes, and, as the jute manufacturer I have quoted says, if there is a quarter of an hour of a stoppage, there is a quarter of an hour's loss at the end of the week. In the engineering trade Mr. Wigram, of the eminent firm of Messrs. Fowler, of Leeds, informed the Labour Commission that as much as a fourth or a fifth of the whole working-day of machine-minders was occupied in putting work on the machine or taking work off. The English operative wastes much less time of the machine over these incidents than any Continental operative, and wasting less time of the machine is of course equivalent to adding to its product, the addition being proportioned not only to the time saved but also to the size and power or general productive capacity of the machine. In this way the introduction of machinery, instead of neutralising the personal superiorities of the workman, really multiplies their value by the amount of its own pro-

ductive capacity, and I shall have occasion to enter with more detail into a comparison of English with French labour, which will show that while in branches of labour using no machinery three Englishmen will do the work of four and in some cases of six Frenchmen, in branches of labour like the cotton manufacture, in which machinery is largely used, three Englishmen do the work of nine Frenchmen. The personal factor really counts for more in machine work than in mere hand work, and if shortening the daily span improves the push or ability of the personal factor, that improvement will tell more on the product of the machine than on the product of the hand, because there is much more product to tell on. It may be true enough that a lathe will not do as much work in 8 hours as it will in nine, *if it is properly worked on both occasions*; but the employer who made that statement, and thought it so conclusive against the eight-hours day, did not realise in the least the great practical importance of the conditional clause in his sentence. The eight-hours workman will necessarily work it better than the nine-hours one, and the difference in the result may be really very considerable. Then it ought to be remembered that however much machinery a work may employ it always requires a body of auxiliary labour in which machinery is less used. I have just mentioned carding as a process in which difficulty has been sometimes found in recovering the old rate of production after shortening the hours of labour. But Messrs. Holden,

of Bradford, the largest wool-combers in the world, who have mills in France running 72 hours a week, and mills in England running only 56, find they can comb wool cheaper in England than in France, though they pay higher wages for the short day of England than for the long day of France, and employ exactly the same automatic machinery in both countries; and one of the reasons, they told Sir Jacob Behrens, was that it was not the people employed on the combing machine itself, but the great number of other workpeople employed in different ways on the premises who do not give for the same money anything like the same amount of labour as workpeople in England.<sup>1</sup> There is thus plenty of play for the personal variation of energy and intelligence even in connection with the most rigidly automatic machine labour.

In the third place there are many industries in which the improvement in productive capacity per hour comes, as I have said, from merely hauling in slack, from the abolition of the old habit of working by fits and starts, or of sheer dawdling, or of other irregularities. I have already given some illustrations of the habit of idling the first half of the week and overworking the second, which was still in 1862, as expressly stated in the Report of the Children's Employment Commissioners, the invariable characteristic of the small workshops and the domestic industries. The restriction of hours by the Factory Act of 1867 did much to

<sup>1</sup> *Trade Depression Commission Report*, Qu. 6754.

remove that evil. When men were no longer allowed to make up for lost time by overwork, they ceased losing time, and so much more was produced in the week than before that a manufacturer told Mr. Redgrave in 1876 his men then earned a shilling a week more in their shorter hours than they did in 1867 when working 13 and 14 hours a day.<sup>1</sup> Trades that habitually work overtime still habitually waste a day or two in the week. Sartorius von Waltershausen was told in the *Public Ledger* Office, Philadelphia, that when the printers wrought 14 hours a day they seldom wrought more than 4 or 5 days in the week, or if they wrought several weeks consecutively without intermission they needed a longer period of rest. When the potteries came under the Factory Acts in 1864, 10 or 12 hours were taken off their working week; in Worcester, for example, I observe from the "Miscellaneous Statistics" the hours were 62 in 1863 and only 50 in 1866; and the factory inspector states that many of the manufacturers said the workpeople did quite as much in the day as they ever did, all on account of the greater regularity with which they wrought. They were formerly in the habit of drinking two days in the week and making up their task by working very long in some of the other four. One of the best, though undesigned, effects of our factory legislation has been the checking of this fatal habit, and the factory inspector remarks with great justice in his report for

<sup>1</sup> *Factory Inspector's Report*, 1877, p. 13.

1872, that "if our labour laws had done no other good than to place obstacles in the way of this inclination on the part of many of our manufacturing population to waste and worse than waste a day or two in the early part of each week, the originators of these laws would have deserved the gratitude of all who have the real interests of their country at heart."

But besides reducing the interruptions of work in the course of the week, short hours have also reduced the interruptions in the course of the day and in the course of the year. They brought with them greater promptitude and punctuality in beginning work in the morning, partly because the masters, since their works ran shorter time in the day, felt they must have a better use of the time that remained, and partly because the men themselves returned from their longer rest with more zest and heart for their work. Several American manufacturers indeed state that when they ran their works 8 hours a day in dull times their men were not so prompt in the morning as they were when working 10 hours in better times; but in slack times the energies of the masters themselves might also be slacker, and a temporary acquisition of leisure is sometimes mis-spent so as to necessitate unpunctuality in the morning. The general experience is certainly, as might be expected, the other way. Short hours carry with them general habits of briskness, which are communicative, and soon pervade the whole establishment. Work is more continuous during the whole day.



Messrs. Watts and Manton, button-makers, Birmingham, said after the shortening of their hours, "Every moment is employed, there is no waste of time in the process, no running of short errands; the habits of the people are changing." In some trades much of the time of the day used to be taken up merely in waiting for work, and that time was, after the Act of 1867, saved for actual work. A female bookbinder said to the Factory Inspector in 1876, "The work is now given out during the day in the factory more regularly and more promptly, and we never lose time waiting for it as we used to do. I find I can earn more money under the Factory Act than when we had no regulations, and in book-sewing we are all paid by piece-work." Complaints of this kind of unnecessary waiting for orders or for materials were laid before the Labour Commission by some of the Sheffield trades. The "makers up" in the Britannia metal trade—a class comprising three-fourths of the persons engaged in the industry—are said to spend not less than a third of their whole time, or about two days a week, in merely waiting in this way for orders or materials without any reason except the dilatory or indolent habits of management of those they work for. Shorter hours generally cure this evil, and sometimes raise the amount of the week's production into the bargain, by merely compelling employers into greater regularity, just as in some instances the railways had done. The old carriers would wait for goods till midnight and even longer, and in those

days the hosiery warehousemen of Leicester would be kept at work very late making up packages for the carriers. But the railway train would not wait, and the Leicester warehouses simply submitted to more regular and shorter hours, because their easy-going habits were no longer humoured. Even in trades where the irregularities of the workhours have come from the dilatoriness of customers in sending orders or from the exigencies of the seasons, greater regularity has generally resulted from a shortening of the day. Orders arrived in better time, and the work was better distributed through the year.

Then some portions of the day, though not lost, were imperfectly used. Both Mr. Beaufoy and Messrs. Johnson and Co. attribute much of the success of their eight-hour experiments to dividing the day into two spells instead of three. You get thus, to use Mr. Beaufoy's phrase, a "solid eight-hour day." Messrs. Johnson say, "Every break means practically a quarter of an hour lost time, getting ready for going and getting ready for work on returning."<sup>1</sup> Then, as both mention, another important thing is that the first spell is done after breakfast instead of being done on an empty stomach. This again has been found an important advantage by Mr. Allan and Mr. Mather as supplying the men with more energy for their work, though some employers seem to think that many of the workpeople will come without breakfast from being unable to take

<sup>1</sup> Webb and Cox, *Eight Hour Day*, p. 258.

it so soon after rising. Messrs. Johnson found 50 per cent. more work done in the morning under the new arrangements than was done before. The mere absenteeism in the morning under the old system was a serious loss ; Mr. Allan said it was so great that really his men never used to work more than 48 hours a week on the average. But now the attendance could not be more regular, and as Mr. Allan recently told a newspaper interviewer, even on the morning of the 3rd of January 1894, the first day after the New Year holidays, every man and boy was at his place in the shop. Not one was absent. Under the old system, he said, that never happened at all. This fact seems to indicate not merely better habits of early rising, but better habits of spending the New Year holidays. The Hadfield Steel Foundry Co., by shortening their hours, reduced their absenteeism in the morning from 20 per cent. to 4 per cent.

Again, under long-hour systems there is always, in the course of the year, a great deal of time lost through sickness and other causes of inattendance, which shorter hours tend to reduce. The manager of a cotton mill (F) told Mr. Horner in 1848 that there was already much less sickness among the workpeople, and many fewer off work since the Ten Hours Act came into operation. A firm of plain and fancy box-makers told Mr. Redgrave in 1876 that when they used to work long hours before the Factory and Workshops Act of 1867, "it was very common for some of the women and girls employed to have fits, and of a bad kind ; and we

think we may venture to say that this has not happened once a year since the Act came into force.”<sup>1</sup> I have mentioned the case of the West Cumberland blast-furnace-men, who, after the reduction of their hours from 12 to 8, improved so much in health, that a number of the casual hands were now spared, who had been retained mainly to take the furnacemen’s place when absent, though jobs of some other kind were given them in the meanwhile. Then besides the interruptions from sickness, there were also under the long-hours system more interruptions of work throughout the year from the mere necessity of change or rest. The Hon. W. Gray says the effect of introducing the ten-hours day into the Atlantic mills was that there was a more continuous and uninterrupted work throughout the year than before. “Usually in the hottest of the summer weather it is very difficult to retain the operatives in the mill. They become oppressed with the heat, and they prepare to go out for a turn of vacation, recreation, &c., and we have been subject to that as well as other mills, but we have found in the last two summers hardly any of our machinery idle for want of operatives. There have been cases of other mills at Lawrence where a thousand looms were standing idle in one corporation, though they pay a higher price than is paid at the Atlantic mill. It is not a question of wages.”<sup>2</sup> To prevent a mill from stopping

<sup>1</sup> *Factory Inspector’s Report*, 1877, p. 17.

<sup>2</sup> *Massachusetts Labour Bureau Report* for 1873.

through these irregularities there is in every factory town of America a special class of supernumerary operatives, whose business is to "work sick," as it is called, and Mr. Harris-Gastrell says you would usually see eight or ten of them about the door of a mill in Fall River waiting for an engagement, in the event of any of the looms being idle for the day.<sup>1</sup> In Russia, another long-hour country, every factory is obliged to retain a regular staff of supernumerary hands, who have learnt the trade, in order merely to supply vacant places arising from temporary inattendance. Men need leisure, and if they are not granted it, nature will evidently take her revenge by wasting in the end more genuine working time than the length of the relaxation she is denied.

To all these diverse economies of time we have still to add the saving of the time spent in repairing spoiled work, caused through excessive hours, and of the time sometimes wilfully wasted through ill-feeling arising from the same source. Mr. Thomasson, of Bolton, we are told by Lord Shaftesbury, used to say there was more spoiled work done in the last hour of the twelve-hours day than in any other two hours; and a manager said to Mr. Horner that it generally took the first hour of the day to put to rights the things that had been done wrong in the last hour of the preceding day. The mere saving of materials in cases like these

<sup>1</sup> Harris Gastrell's *Report to Foreign Office in 1873 on the Factory System of the United States*, p. 509.

is of course very important, for the price of raw material constitutes constantly a larger and larger share of the value of commodities, as compared with the price of labour, and a little less waste of raw materials every day will soon tell on the profitableness of the business. When we add to it the saving in gas and fuel, and in the yearly expenditure on repairs of machinery, arising from the greater care which employers admit is bestowed on the machinery by the men under a short-hour system, the whole economy amounts to a very considerable gain. But at present I am speaking merely of the saving of effective working time, and the time wasted in avoidable repairs of bad work is one item worthy of attention.

Then think of the time intentionally wasted. Mr. Spill, an india-rubber manufacturer, informed the Children's Employment Commission that he found working overtime extremely unprofitable, because his men used to loiter over their work in the regular hours in order to get better pay for it by doing it during overtime.<sup>1</sup> A working engineer in Massachusetts, who had been seventeen years with the master he then worked for, said they wrought 11 hours a day in his establishment for the same wages got in neighbouring shops for 10 hours a day, and added that he was satisfied the master had made nothing by his extra hour, because the best workmen used to leave as soon as times got brisker, and he was obliged therefore in good

<sup>1</sup> *Fourth Report*, xxvii.

times to put up with an inferior class of workmen, who had to get the pay of good workmen, and who gave their work reluctantly.

"The prevailing feeling among his men towards him [he says] is similar to that generally entertained towards a farmer or trader who always asks a little more than a fair price for everything he offers for sale, and this feeling crops up almost every day as opportunity offers of shirking with the remark, 'I must get my hour somehow.' The apprentice feels that he 'gouges' an hour out of him and acts accordingly, and this too in face of the fact that in many respects he is a good man to work for. The hands brood over these things as a personal wrong, and it tells against their faithfulness."<sup>1</sup>

As compared with the effect of 11 hours' brooding of this sort every day, the effect of an hour more or an hour less on the product would evidently be very small.

The world takes a long time to appreciate adequately the enormous productive value of mere contentment and cheerfulness of mind—it is only the other day that the sharpest people on earth still thought slave labour profitable. Dr. Ure once asked a leading manufacturer why he paid such a high rate of wages as compared with his neighbours, and the answer was:—

"We find a moderate saving in the wages to be of little consequence in comparison of contentment, and we therefore keep them as high as we can possibly

<sup>1</sup> *Massachusetts Labour Bureau Report*, 1872, p. 243.

afford, in order to be entitled to the best quality of work. A spinner reckons the charge of a pair of mules in our factory a fortune for life; he will therefore do his utmost to retain his situation and to uphold the high character of our yarns.”<sup>1</sup>

If contentment makes so great a difference on so automatic a mechanical operation as mule-spinning, what must not be its influence on more exclusively personal industrial operations? Now, one of the first and most marked effects of shortening hours, has been the greater satisfaction and cheerfulness which the labourers feel in their work. They come back to it in the morning with a new spring and relish, and they leave in the evening with hope and spirit. Mr. Baker reported in 1870 that masters wrote him of the advantage they had reaped from the reduction of hours enforced by the Act of 1867, and that the men earned as much, if not more, wages, and did better work than under the old *régime* of long and variable hours, and he quotes one of them as saying:—

“It does one good these summer mornings to see the quiet of our streets at 5.55, so soon after teeming with life. The workers seem more joyous than ever I remember them at closing time during the last twenty years. You would be gratified if you heard the encomiums passed on the 6 o'clock movement (the new day was 8 to 6). It is changing the habits of the working population entirely. I often stand at about

<sup>1</sup> Ure, *Philosophy of Manufactures*, p. 366.



6 P.M. on the steps of our warehouse entrance watching the crowds go by in the full light of the sun, not as formerly just when it was setting, and they wearied and spiritless.”<sup>1</sup>

Mr. Horner says many of the working people spoke to him of “the satisfaction of mind that resulted from the short day,” and Mr. J. C. Proudfoot, a joiner in Glasgow, told the Select Committee on Masters and Operatives in 1860 regarding the Saturday half-holiday which had recently become a general custom in that city, that quite as much work was done as before, because the men got a sail down the Clyde on the Saturday afternoon, and had “more pleasure in their work.”<sup>2</sup>

The cheerful mind carries a spontaneous vigour into labour, and dispenses with much of the necessity for constant superintendence and goading. English travellers often speak now of the “go” and energy they observe in the 8 hour Victorian labourer, as compared with the English labourer, very much as Mr. Laing and other travellers used to speak of the energy visible in the English labourer as compared with the continental. There is no languor and dawdling, even though the master’s eye may not be upon him. This in a large establishment is worth far more to the product than an hour longer in the day. “Skill in management, and thoroughness in discipline,” said the manager of an American factory, “are more important than the eleventh hour to the product of a mill, and thorough

<sup>1</sup> *Factory Inspector’s Report*, 1870, p. 44.

<sup>2</sup> Qu. 2904-5.

discipline is much more attainable under 10 hours than under 11 hours. For men and women are flesh and blood, and cannot be held up to such steady work during 11 hours as during 10, and overseers are flesh and blood, and cannot hold them up." <sup>1</sup>

But perhaps the chief increment of industrial efficiency in the English labourer will come from the better cultivation of his intelligence, the only point at present in which he stands at a disadvantage in comparison with some of his rivals. This raises the very important, and to many minds anxious and perplexing, question, Will the English labourer use any further leisure he may acquire for the improvement of his mind by reading and study and not for the destruction of his body by drink and dissipation? Experience, as far as I have been able to follow it, lends the strongest encouragement to the hope that he will use it as a rule for his improvement.

In the first place, generally speaking, we have now been going on shortening hours for half a century and all the time our workpeople have been growing in temperance and health and intelligence and efficiency. The British workman used to be notorious beyond all others for his drunken and irregular habits, but though he has received ever and anon more time to indulge those habits if he chose, he has not grown worse but grown better. The testimony of employers at the Labour Commission was uniform and decided on this point.

<sup>1</sup> *Massachusetts Report on Uniform Hours of Labour*, p. 142.

The shortening of the hours has of itself, as I have already shown, suppressed in many trades those habitually irregular habits of working, which had much to do with the other irregularities of his life, and though it has no doubt given to certain individuals increased opportunities of ill-doing which they have used to their hurt, the general effect has been the other way. Sometimes the effect is said to have been good on the educated but bad on the illiterate. When the eight-hours day was first introduced among the South Yorkshire miners, Mr. Normansell says the uneducated spent their time drinking, but the educated used it properly, and when it was introduced into the Rock Island Arsenal, U.S.A., the Commandant reported that the skilled workmen were improved by it and the unskilled injured. The Education Act has in this country taken away that predisposing condition of abuse, and the miner is a changed man from what he was thirty or forty years ago. Mr. J. P. White, a coal-owner at Coalville, says that when he began business thirty-nine years ago, the miner was "altogether a different individual" from his successor of to-day. The miner of to-day, he says, "takes an interest in parochial matters and attends his place of worship; and if there is any question such as technical education which is now cropping up he gives a very fair attendance at the village school and takes an interest in it in that way."<sup>1</sup> The Northumberland

<sup>1</sup> *Labour Commission Report*, A. Qu. 7258.

miners, who work about the shortest hours, are credited with being the most sober and steady class of miners in the whole country. Mr. R. Young and Mr. J. Nixon said they had often been told so by the coal-owners as a body. How then, it was asked, do they spend their leisure? "They attend reading-rooms; they have a mechanics' institute at every colliery, I should say; and as I said before, they are nearly all members of co-operative societies and they are interested in seeing those societies successfully carried on. Then some of them no doubt take an interest in sports of different sorts just like other people." Mr. Young added that they had science and art classes in a considerable number of the colliery villages of Northumberland, that they had University extension lectures largely attended, and that there was a higher percentage of honours won by miners at the examinations in connection with these classes and lectures than the average.<sup>1</sup>

The chief complaints brought before the Labour Commission against the present generation of colliers came from Lancashire, where the hours happen to be comparatively long, and where the colliers are alleged to be growing worse and worse for the number of play-days they take. Shorter hours might prove the remedy for this. Mr. T. Griffiths told the Coal Commission of 1873, that since the South Staffordshire miners got their hours reduced in 1872 from 66 to 48

<sup>1</sup> A. Qn. 2292-96.

in the week, they were working with much more regularity, and neither wanted nor took so many days play.

Employers often used to assert that the longer leisure in the evening would only lead the workmen to visit the public-house before going home, but experience has shown the tendency to be precisely the opposite. Messrs. Watts and Manton say, "The habits of the people are changing; there is a greater desire for home life, and greater longing after the means by which it is to be rendered more agreeable."<sup>2</sup> Mr. Johnston, flax-spinner and ex-Mayor of Belfast, says that under the long hours the boys used to lounge about the street corners and frequent the public-houses, but since the hours were shortened they attended reading-rooms in large numbers, and when tired of reading would amuse themselves with games. Mr. C. Wilson, manufacturer, Hawick, told the Labour Commission that his men had been using their leisure wisely, and had improved during the years they have now enjoyed it. Among other things they had used it for the cultivation of allotments, and took great interest in vying with one another who should produce the best fruit and vegetables.<sup>3</sup> A year after the enforcement of the Act of 1867 the factory inspector makes the general statement, "Assuredly the usefulness of the first hours of rational freedom from late employment has not been overrated. The power which the

<sup>1</sup> Qu. 5970-2.

<sup>2</sup> *Factory Report for 1870*, p. 44.

<sup>3</sup> *Labour Commission*, C. 7682, 7686.

working classes now possess of making arrangements for outdoor enjoyments in the summer and for intellectual advancement of every kind during the winter months is fully appreciated, and would be most reluctantly parted with.”<sup>1</sup>

Since the eight-hours system was introduced into London gasworks it had been observed, said Mr. A. Linton to the Labour Commission, in two different friendly societies which dealt with stokers, that the claims for sick pay had declined, and he added that the general condition and habits of the class had improved. “It was at one time something exceptional to see a man who was not to a certain extent degraded by drink; directly work was over men went to a public-house and stayed there for hours. Since the Gasworkers’ Union had come into existence they had been taught to become temperate men, and in a great many instances teetotalers, and so made the conditions better, both as regards themselves, their wives, families, and homes.”<sup>2</sup>

The experience of foreign countries on this head is identical with that of England. Before the eleven-hours Act was passed in Switzerland, it was generally prophesied that the time gained from the mills would only be given to the public-houses, but M. Blocher, a Swiss cotton manufacturer, says expressly that he has remarked nothing like that, and that it was always when his men wrought day and night that he used to see most dissipa-

<sup>1</sup> *Factory Report*, 1868, p. 277.

<sup>2</sup> C. Qu. 25453-9.

tion. Shorter hours had brought with them stricter discipline, and diligence rose to a higher maximum than before.<sup>1</sup>

It was really only the shorter day that first gave our workpeople either time or spirit for any other recreation than the ready but dangerous ones supplied in the public-house. In trades in which the burden of the long hours was unusually severe, the removal of that burden wrought an immediate change, and the men seemed to recover in a moment their natural temperance, lost solely under overwork. The reduction of the hours of the West Cumberland blast furnacemen from 12 to 8 in the day increased the membership of the local temperance societies by 50 per cent., and Messrs. Brunner, Mond and Co. state explicitly of a similar reduction made in their works, "To the men it has been the greatest boon. It has had the most material effect in improving their health and decreasing the amount of drunkenness which before the adoption of the system was very great indeed. The interference of the police is not called for now as it used to be."<sup>2</sup> Messrs. Johnson of Stratford, after four years' experience of the eight-hours system, say that they have now a more intelligent set of men, and that the men and lads have come, in consequence of their greater leisure, to improve themselves by attending technical classes in the evening.<sup>3</sup> One of Mr. Allan's

<sup>1</sup> *Revue d'Economie politique* for 1891, p. 860.

<sup>2</sup> Hadfield and Gibbins, *A Shorter Working Day*, p. 141.

<sup>3</sup> *Ibid.* p. 140.

apprentices at Sunderland opened the situation very well when he told the correspondent of the *Newcastle Chronicle* that the great benefit of the eight-hours day to him was that it let him attend evening classes without necessitating any curtailment of sleep.

I have already mentioned the experience of Messrs. Bushill and Sons, Coventry, that their employés have manifested a striking and increasing dislike to working overtime since their ordinary work hours have been shortened. Their leisure is much more valued, simply because it is really much more useful; it is now long enough to do something in and to be worth while making plans for its better employment. But Mr. Bushill has still more pleasing experiences to record as to the effect of greater leisure in positively stimulating plans for its own improvement. His firm employs 250 hands, and they have observed no tendency among them to abuse their leisure. "As far as we can tell," says Mr. Bushill, "the extra leisure is well spent," and they would have certainly soon been able to tell if any number of their people were spending it ill. On the contrary, they have had a remarkable proof that many of their men are using it in the most profitable way. They have started a book club and are buying books at the rate of 600 a year. Mr. Bushill writes me:

"Soon after this reduction of hours was made, one of the men came to the writer and said that, as they had more time in the evenings to themselves, he thought



that many would like to buy books to read. A proposal for a book club to be maintained by weekly contributions from voluntary members was submitted to the Works' Committee and heartily approved. At the close of the first year over 600 volumes were distributed, and it is anticipated that quite 1,000 volumes will be bought next Christmas. The great bulk of these books, it is certain, would not have been purchased but for this reduction of hours. Here is an interesting suggestion of how, in dealing with one industrial question, the alleviation of another may be assisted. These thousand volumes represent so much work for the paper-maker, the printer and the binder, and thus 'shorter hours' have tended to benefit the unemployed."

The first effect of the Ten Hours Act in England was to develop an immediate and very remarkable fervour for mental improvement. Dean Hook wrote Lord Shaftesbury in 1849, that fifty night schools had been opened in Leeds since the passing of the Ten Hours Act the year before. The timekeeper of a Lancashire mill told Mr. Horner that in the night school in which he was a teacher the number of pupils immediately increased from twenty to fifty when the Act passed, and added, "I find, likewise, it has given more taste for reading; there is more inquiry for books from the librarian."<sup>1</sup> Mill managers mentioned that far more of their young women went to night schools than formerly,

<sup>1</sup> *Factory Inspector's Report*, 1849, p. 50.

and that in some places they met together in the evening to sew and read. It became a general practice to have a night school in a mill, the owner giving the room and light gratis, and the school was usually conducted by the factory hands themselves on the mutual principle, the man who had mastered arithmetic being set to teach the man who had only mastered grammar, and *vice versa*. The fee was a penny a night, and sometimes threepence for two nights. The manager of a cotton mill says:—

“I think the workpeople in the mill feel the benefit of the Ten Hours Bill in the increased facility afforded to them for gaining instruction and information. They have established a night school among themselves, for which the master lends them a room in the mill, furnished with desks, forms, &c., and supplied with fire and light. There are a library and excellent maps in it, and in time they hope to procure globes. The system is one of mutual instruction, which the hands prefer to any other. The engineer is superintendent, and he is assisted by three or four others, who take the chief part in the teaching. They meet from 6.30 to 8, and sometimes continue later. Alternate nights are set apart for males and females. Both attend two nights in the week. The ages of the males, speaking generally, vary from eleven to eighteen; those of the females from eleven to thirty-two. There are married people of both sexes who also attend. Out of 120 hands in the mill about fifty come regularly, twenty males and thirty

females. Reading, writing, arithmetic, and geography are at present taught. Instruction in the higher branches of knowledge will be given as the people are fitted for it."

The engineer supplemented this testimony by saying they had also two libraries in the mill, a free and a subscription one, the subscription one having eighteen subscribers.<sup>1</sup> In another mill, two young men, not content with their two nights in the mill night school, started another night school of their own for other three nights in the week. They paid three halfpence a week for light and fire, and imposed a fine of a halfpenny for absence or swearing. Sometimes father and son sat side by side in the same class. A carder said to Mr. Horner, "I come to this night school once or twice a week and bring three of my children." In fact, it was this educational advantage often that reconciled the father of a family to the serious reduction of wages that accompanied the introduction of the Ten Hours Act. While we find one workman with twelve children saying he would like to go back to the twelve-hours day, having twelve good reasons for doing so, we find another with quite as large a family, but some of them old enough to be at work in the mill, saying he much preferred the ten-hours day for the sake of his children because it gave them a chance of fitting themselves better for the world.

This was no merely local movement. Night schools

<sup>1</sup> *Factory Inspector's Report*, 1849, p. 57.

were reported to be increasing in Manchester just as in Leeds; at Blackburn they were said to be springing up on all sides; at Bolton and Stockport the number of hands attending night schools and mechanics' institutes had nearly doubled since the Act passed; at Preston there were 250 females attending the night school in Gardner's factory, and 104 of the 270 hands were at the night school in Horrocks's; at Keighley the membership of the Mechanics' Institute rose from 200 to 400, and 156 young people were attending classes two nights a week, which, the inspector states, would be all stopped if the hours of labour were to be increased again, as was then sometimes suggested, to eleven. The shorter hours, therefore, by the mere fact of giving time for learning, which working people never before enjoyed, undoubtedly quickened among them the desire for learning in a very general and remarkable way, and served so far to create the very mental habits which were required for drawing the full industrial benefit from the change. The present generation is much more generally educated than the generation of 1848, and cannot be supposed to be any less desirous or less capable of finding ways of using their leisure, if they get it, for their further improvement.

If we are justified in expecting the gift of leisure to spread an active desire for mental improvement, we are even better justified in expecting this spread of mental improvement to result in very substantial gains in industrial efficiency. We have seen employers remarking

a certain quickening of the intelligence in their men immediately after the shortening of their working-day. The faculties, which seem to have been somewhat torpid and wandering under the long hours, concentrated themselves with more purpose and interest in their work and produced better results. But I speak now of the increase of intelligence to be expected from the larger opportunities for mental instruction afforded by the shorter day. We have begun to grow alive to the value of technical education, but for the ordinary workman the fruitful thing is general education.

Sir William Fairbairn, the engineer, told the Poor Law Commissioners that the more difficult parts of a work could not be trusted to any but a well-educated man. There were many kinds of manual work that needed a good deal of thinking and planning, and were really as much work of the head as of the hand, and for that sort of work education was an obvious advantage. Then operations in engineering work were very manifold, and a great difference was always observable between the educated man and the uneducated in changing from one sort of operation to another. The latter had nothing like the versatility of the former. It required a certain school education, said Sir William, to make a man capable of doing each of a succession of different operations in the best way. "Why is it," asked Colonel Barrows, the manager of the Willimantic Thread Co., of Connecticut, of an English traveller, Mr. D. Pidgeon,—“why is it that the Willimantic thread

will lift more ounces of dead weight and is smoother than any other? Every manufacturer can buy the same cotton and the same sort of machinery to work it; why then the superiority of our products? Simply because they are made by people who know more than any other people in the world engaged in the same work. They put more brains into their work than others do. They are intelligent enough to know the value of care, intelligent enough to be conscientious about employing it, and intelligent enough to know how best to apply it with skill to produce the best results. That is why it pays us directly to increase their knowledge.”<sup>1</sup> This factory has its reading-room and library to improve the mind which improves the thread and gives the Willimantic Company the command of the market, and the work-room is a vast hall, 200 feet high, lit by stained-glass windows, and bright all round, as on a festival day, with creeping plants, geraniums, and flowering shrubs, growing up alongside the walls. In the centre the young spinsters at the frames are no slatternly mill hands, but are neatly dressed in a uniform white linen apron, and present a very tidy and tasteful appearance. And all because, in the opinion of the enlightened and even philosophic manager of the company—to use his own words—“the very intelligence by which our thread owes its superiority is fostered almost as much by cleanliness, order, and beauty as by education itself.”

<sup>1</sup> Pidgeon, *Old World Questions and New World Answers*, p. 219.

Americans have long understood the industrial value of schooling in their workpeople. It is more than forty years since Mr. Peshine Smith, the American economist, said it was commonly considered in the United States, where there are unrivalled opportunities of seeing American and foreign labour working side by side, that the superior intelligence of American operatives was an advantage of fully 20 per cent. to the American manufacturer. In order to test the influence of education on efficiency, the Massachusetts Education Board about the same period procured from factory overseers in that State a return of the different amounts of wages earned by their different workers, and of the degree of education of the respective earners, and the return showed that the scale began at the bottom with those foreigners who made a mark as a signature to their weekly receipts for wages, and rose grade by grade to the girls who attended school in the winter and worked in the factories in summer. They all wrought by the piece, and the sums they severally earned, and consequently the work they had severally done, was in exact proportion to the degree of their education.<sup>1</sup> Professor Ely, of Baltimore, says that it has been ascertained that with no noteworthy exception the higher in any district of the United States the *per capita* expenditure for schools the higher is the average of wages, and therefore by implication the higher the production of wealth. The industrial

<sup>1</sup> E. Peshine Smith, *Manual of Political Economy*, p. 107.

advantage of education is shown again in the fact that the educated workman responds better to a stimulus like piece-work. It has been shown, for example, by Professor Roscher, from the difference between the day-wages and piece-wages of rural labourers in the different States of Germany, that the labourers in the well-educated States gave a higher increase of return under piece-work than the labourers in the worse educated States. Then, for want of sufficient education in rural labourers, Mr. Hearn points out that many new agricultural machines remain practically unused; for want of training of hand and eye, Mr. Nasmyth says, most workmen waste two-thirds of their time in testing their work with the square and the straight-edge, which the dexterous workman seldom uses; and for want of a more general possession of leisure and education among the working classes we probably lose many useful inventions every year, for Mr. Denny, of Dumbarton, instituted an award scheme in his yard in 1880 for recompensing improvements in machinery or methods suggested by the workpeople, and after six years said the scheme had converted his men into thinking and planning beings, and that 196 awards had been actually given, and three times as many proposals had been considered.

The American workman has been long a great inventor, partly because he has been well educated, partly because the patent laws of the great republic make registration cheap and easy, and partly because



the opinion of the workshop, which is so often adverse to new inventions in other countries, is generally favourable to them in America, the workpeople understanding well that it is only by constantly improving the methods of production that any country can under modern competition keep or extend its command of the markets of the world. The future progress of society will depend much on this constant improvement in the methods of production, and that is a work in which a well-educated and comparatively leisured labouring class can be reasonably expected to play an important part.

## CHAPTER IV

### THE EIGHT-HOURS DAY AND FOREIGN COMPETITION

IT is commonly assumed that an eight-hours day must necessarily tell ill on the position of England in competition with other nations, merely because it is commonly assumed that an eight-hours day must necessarily raise the cost of production. But there is nothing to justify that assumption either in our experience of past reductions of the hours of labour or in our recent trials of the eight-hours day itself. It is not disputed that we have produced as cheaply in 10 hours as in 12, and that we have produced as cheaply in 9 hours as in 10, mainly, and in some cases solely, because shortening the work-hours improved the productive energy of the workpeople to such a degree that they were able to turn out as much work in the shorter day as in the longer. There is no sound reason why the same result should not flow again from the same cause, for the personal improbability of even the best of our workpeople is far from being exhausted. In counting up the cost of shorter hours, employers are apt to leave

this important item out of the reckoning. Manufacturers of the highest position came before the Labour Commission and stated that they had gone very minutely into this question of cost, that there was so much for interest on buildings and machinery, so much for general management, so much for wages, that since the machinery would run 11 per cent. shorter time there would be 11 per cent. less product, that when the standing charges were distributed over the smaller product there would be much more than 11 per cent. added to the expense of production, and that they saw no chance of making a profit at home or competing with the foreigner abroad, and would transfer their mills to the banks of the Indus. They simply ignored the great asset which paid the whole cost of the Ten Hours Act, just as Cobden ignored it when he said that Act would stop every engine in the country, and Mark Phillips, when he declared he would sell off his mills in Lancashire and set them up across the Channel.

It is of course impossible to give an exact estimate beforehand of the degree in which the personal efficiency of English labour will be improved by a further reduction of hours, or the degree in which that improvement will tell on production. That can only be known by experiment, and the experiments that have been already made go far to show that the fund which paid the cost of the ten-hours day is still sufficient to pay the cost of the eight-hours one. They go to show that under the eight-hours system men work with so much

more energy and concentration while they work that they turn out as great a quantity, and sometimes even more than they did under the nine-hours or ten-hours system, and are less exhausted at the finish, for they are expressly stated to be in better health and spirits. Still, even successful experiment seems inadequate to overcome the obstinate preconceptions and incredulity that prevail on the subject.

After the Labour Commission received explicit evidence of the eight-hours system being actually tried in shipbuilding by Messrs. Short, and in engineering by Mr. W. Allan, M.P., with the result in both cases of a positive increase of product and a positive diminution of cost, they were quite as explicitly assured by leading employers in the same branches of industry that an eight-hours day was utterly beyond the range of practical discussion, and that it would render it impossible for English engineers to compete with foreign engineers. But the antecedent opinions of even the largest and most experienced employers cannot be set in the scale against actual experiment, and the teaching of experiment, as far as it has yet gone, seems certainly to indicate that an eight-hours day will strengthen us against foreign competition rather than otherwise, because it will strengthen that precise factor in production by which our industrial supremacy has been principally maintained, and on which apparently it must altogether depend in the future—viz., the high industrial energy of our workpeople.

The industrial competition of the nations is fast becoming a mere contest in the personal productive capacity of their labourers. The other conditions of the strife are getting equalised. Cheap and rapid transport is now levelling the advantages one country enjoys over another in proximity of raw materials and markets. Cotton can be brought to Lancashire from Virginia almost as cheaply as to Massachusetts, and the Manchester Ship Canal is calculated to cut a fourth off the whole freight to Bombay. Coal is no longer the monopoly of any particular nation, and may be superseded any day for motor purposes by electricity. Improved machinery is no sooner made in one country than it is imported or imitated in another; and as the material elements of the competition are growing equal, the supremacy must obviously go to the nation that can turn these elements to most account—the nation with the most vigorous, the most intelligent, the most productive working class. As Macaulay said in his famous speech on the Ten Hours Bill, if we are ever to be deprived of our industrial supremacy it will only be by a finer and more powerful industrial people than the people of England, and a finer and more powerful industrial people than the people of England is not built up in a day. It is a great mistake, as I have already had an opportunity of showing, to imagine that the introduction of machinery has in any degree diminished the importance of the influence which differences in the personal efficiency of the

labour of rival nations are capable of exerting on the results of the production of these nations and on their fortunes in mutual competition. Personal efficiency plays as decisive and controlling a part under machinery as it does in hand labour; and as in other respects it is playing a greater part in the contest, then if we have been able to keep ahead of other nations in the past by keeping ahead of them in personal efficiency, we need not fear losing our ground now through anything that cultivates that quality to greater perfection. As much of the existing error on the subject of short hours arises from under-rating the importance of this personal factor in the international competition, we may give some words to that point before proceeding further.

In the national distribution of industrial gifts it has been observed by Professor Roscher that the French stand first for taste in work, the Germans for intelligence in work, and the English for energy in work. Foreign employers have found many faults with the English labourer. He was—at least in old times—the worst educated of all labourers, he was the most dissipated, he was the most unruly; but for sheer power of work, for combined force and endurance, for close, continuous, effective, and rapid application, it is universally admitted that he has never had a rival, except among his own kinsfolk in America and Australia. Michel Chevalier, the eminent French economist, who was an engineer before he was an

economist, and had practical knowledge of workpeople, says that the Englishman is physically better fitted for labour than the Frenchman, having firmer sinews and more vigorous muscle, and that he carries on his work with more perseverance and method. "He becomes interested in it and passionately bent upon it. If he meets with an obstacle in his task he attacks it with devouring passion which a Frenchman can feel only in the presence of an adversary in the human form."<sup>1</sup> Precisely the same thing was told to the Factory Commission of 1833 by Edwin Rose, who had been manager of a mill in Alsace. He said he thought the French had not that perseverance which the English have. He had often noticed them trying a thing, and then if it did not answer at first they seemed terrified and shrugged up their shoulders and threw it aside, whereas an English workman would keep trying and trying and would not give up nearly so soon as the Frenchman. This perseverance in a difficulty, this determination not to be beaten by it, this passion to master it, of which Chevalier speaks, is the result of physical and mental energy, but it had the effect of quickening the workman's intelligence in his work, so as almost to make up for what used to be his chief defect, his want of general education. Mr. Mundella, who is well acquainted with the labourers of many countries, thinks the English excel even in natural intelligence, and Mr. Hans Wunderley, a Swiss

<sup>1</sup> Chevalier, *The United States*, p. 280.

cotton-spinner, who employs English, French, German Italian, and Swiss, told the Commission on Technical Instruction that "in practical knowledge of their work, in mechanical genius they are better without technical knowledge than the Continental workmen are with it, while in physical endurance and all-round capacity they have no rivals."<sup>1</sup> Mr Brassey, the eminent railway contractor, who enjoyed unexampled opportunities of comparing the workmen of different countries, came to a similar conclusion. He found English labour superior to Continental in branches of industry like mining and tunnelling, because of its greater energy, endurance, and courage; and he found it superior also in branches like engineering, because it was more practically 'go-ahead and resourceful.'<sup>2</sup> When constructing the Paris and Rouen railway, on which he employed 4,000 Englishmen and 6,000 Frenchmen, he took special pains to ascertain the relative industrial capacity of the two nationalities, and found that, though the Englishmen wrought two hours and a half less in the day, three of them did as much in the week as four Frenchmen in ordinary navy work, and as much as six Frenchmen in the heavier work, and they could after all be still relied on, which the Frenchmen could not, for making an additional spurt under pressure.<sup>3</sup> And whatever be the case with the French navy, the English navy

<sup>1</sup> *Second Report of Commission on Technical Instruction*, p. 269.

<sup>2</sup> *Helps' Life of Mr. Brassey*, p. 81.

<sup>3</sup> *Brassey, Work and Wages*, p. 81.



seems to have improved in his power of work since that time, for when the Bedford line was made about 1862 it was found that, though the weekly wages were rather higher than when the Great Northern line was made, the work never cost more than elevenpence a yard, while it would have cost eighteenpence on the Great Northern.<sup>1</sup> Fifteen years of free trade had perhaps told on their condition. Mr. Bright once said that free trade had added thousands of tons to the weight of the British working class. In other trades the testimony is similar. Sir I. Lowthian Bell states that though Luxemburg ironstone is not harder to work than Cleveland ironstone two Cleveland miners will take out ten and a half tons of stone in an eight-hours day, while two Luxemburg miners will only take out ten tons in a twelve-hours one.<sup>2</sup> Edwin Rose said two English masons would in his time do the work of three French ones, and Mr. Brassey found at Alderney break-water in 1852 that on piece-work English masons earned a fourth more and sometimes even a half more than French masons.<sup>3</sup> It has often been stated how Sir W. Armstrong imported French, German, Belgian, and Norwegian engineers during the strike of 1871, and found them much dearer in the end than English workmen; and it was stated by the Secretary of the Amalgamated Engineers to the Trades Union Com-

<sup>1</sup> Brassey, *Work and Wages*, p. 226.

<sup>2</sup> Bell, *Iron Trade of the United Kingdom*, p. 86.

<sup>3</sup> Brassey, *Work and Wages*, p. 85.

mission, that English machine makers working in France made 56s. a week for the same quantity of work they would only get 36s. for in England.

Coming now to the textile trades, which are peculiarly subject to foreign competition, and in which the personal differences between the workers of different nations are often supposed to be neutralised by the spread of self-acting machinery, we find precisely analogous results. The same machinery will, in English hands, turn out a much larger product per machine as well as per man than it will in Continental hands. From a very careful investigation made into this subject recently by Dr. Schulze-Gävernitz, it appears that there are only 2·4 operatives for 1,000 spindles in Oldham, while there are 5·8 in Mulhouse, 8·9 in Alsace generally, 6·2 in Switzerland, Baden, and Wurtemberg, 7·2 in Saxony, and 25 in Bombay.<sup>1</sup> That circumstance alone shows the personal superiority of English labour telling on the production to the extent of 140 per cent. above the best Continental labour. But besides that, the spindles run at greater speed in England, and the stoppages are much fewer and shorter. At Mulhouse, which comes nearest us of all Continental manufacturing centres, the spindles run 10 per cent. slower than they do in English mills, and yet it appears from a statement made by an Alsace manufacturer at the German Commission of Inquiry, that in consequence of stoppages to knot broken

<sup>1</sup> Schulze-Gävernitz, *Der Gross-betrieb*, p. 121.

threads or put machinery right or for other reasons, the spindles are not actually running more than 80 per cent. of the time the labourers are there, while English spindles run from 92 to 95 per cent.<sup>1</sup> There is here a gain of 10 per cent. in the speed of the machinery and 15 per cent. in time saved—in all 25 per cent. in the use of each machine, and as the English operative attends to two and a half times more machinery than the Alsatian, the gain from these sources must be set down at 60 per cent., which, added to the previous 140 per cent. makes a total gain of 200 per cent. arising under machine work from the greater personal efficiency of the English labourer. It would not pay to run the machinery faster in Alsace or to give the workpeople charge of more spindles a-piece because the time lost in stoppages and the waste of raw material would be too much increased.

In weaving the state of the comparison is the same as in spinning. The Alsace weaver attends on an average 1·5 looms running 140 picks a minute while our Lancashire weaver attends on an average 3·9 looms running 240 picks a minute;<sup>2</sup> and yet, though attending to so many more looms running so much faster, the English weaver loses much less time in accidental or necessary stoppages than the Alsatian. He loses only 16·6 of his time through threads breaking and other interruptions, while the Alsatian loses 20 or

<sup>1</sup> Schulze-Gävernitz, p. 118.

<sup>2</sup> *Ibid.* pp. 193, 194.

30 per cent. of his, and if the Alsatian loom is sped to 160 picks, the loss mounts, according to M. Karl Grad, a considerable authority on the Alsace cotton industry, to 34 per cent. Raise the speed to the English rate of 240 picks, and it is obvious that half the time of looms and men would be lost in Alsace, all, as M. Grad frankly admits, for want of labour of the same personal efficiency. The English weaver attends to 160 per cent. more looms, running 70 per cent. faster, and loses 10 per cent. less of his working time. The Alsatian loses three hours of his twelve-hours day, while the Englishman loses only an hour and a half of his nine-hours one, so that in effective work the machinery is occupied about as long in the short-hours country as in the long-hours one.

Nor is this yet all. For though the Englishman attends to more than twice the number of machines running twice as fast, he requires less supervision. There is one overlooker in England for every 60,000 or 80,000 spindles, one overlooker in Alsace for every 15,000, and one overlooker in Saxony for every 3,000 or 4,000.<sup>1</sup> English overlookers are quite as superior as English workmen. Mr. Redgrave, the late Chief Inspector of Factories, mentions in his Report for 1866, that he was told by the manager of a cotton-factory at Oldenburgh, that if the machinery was superintended by English overlookers, it would with local labour turn out the same amount in  $14\frac{1}{2}$  hours

<sup>1</sup> Schulze-Gävernitz, p. 142.

as the same machinery with English labour would turn out in 10, but if it were superintended by German overlookers, it would not turn out nearly so much. The extra overlookers, moreover, are not the only extras. It is still true, as it was sixty years ago, in Edwin Rose's time, that you have not only twice the number of hands, but "you must have twice as large a building to contain the hands, twice as many clerks and bookkeepers, and overlookers to look after them, and twice as many tools to do the same quantity of work as is done here in England." It is to this extra army of auxiliaries, as we have seen, that Messrs. Holden attribute the fact that though they have a carding mill in France with the same machinery as their mill in England, they cannot card so cheaply in France in spite of the low wages.

After all this, is it any wonder to read in Dr. Gävernitz's book, how the German manufacturers giving evidence at the Commission of Inquiry, one after another said they were confounded to find that the country where labour was really cheapest was the country where the wages were highest and the hours shortest, or to read in the letter of a German ironmaster to Sir I. L. Bell, explaining why he employed twice as many men for the same work as would be done in an English blast-furnace—"We have often the same technical appliances as you in England, for anything an engineer sees he can imitate and construct, but what we cannot imitate is to work with our cheaply-fed men

with the same vigour that your English workmen labour.”<sup>1</sup>

We beat them simply by more energetic labour, and the same thing is shown perhaps even in some ways more strikingly at home. Why is the cotton industry of Glasgow going down before the competition of Lancashire? Coal and iron are as near Glasgow as Lancashire, the climate is quite as damp, the machinery is or may be as good, the hours of work are the same, the employers are quite as keen in management, the wages are considerably lower, yet though in certain fancy goods the Scotch manufacturers still hold their own, they are simply nowhere whenever it comes to plain goods in which quantity tells. The whole reason is the superiority of Lancashire labour. Mr. James Henderson, who had much experience of both localities as factory inspector, says:

“There are no operatives of whom I have ever had any experience, who work with so much energy as the Lancashire people, and the contrast between a Scotch and a Lancashire weaving factory in this respect is very remarkable. The Lancashire weaver works with a will; she earns a high wage (on an average double that of her Scotch sister in the same class of work), and is anxious to maintain it. She will take charge of four power-looms without hesitation. . . . In Scotland, on the other hand, it is common to find weavers of long experi-

<sup>1</sup> Bell's *Iron Trade of the United Kingdom*, p. 564.

ence with only two looms, and it is with difficulty that they can be persuaded to take a third.”<sup>1</sup>

In 1890 the Glasgow Trades Council sent a special commissioner to inquire into the relative circumstances of Scotch and Lancashire cotton-weavers, and found among other things, that though the Scotch weavers got only half the weekly wages of the Lancashire weavers, the cost of weaving to the manufacturer was higher in Scotland, because the weavers were so much less efficient. Scotland is losing her cotton industry through nothing but the comparative inefficiency of her labour, and if that were further investigated, it would be found that the low wages had much to do with it. The high wages of Lancashire draw the best labourers of the district into that particular trade, and secure to them the sound nourishment on which industrial energy depends. The wages of cotton operatives in Scotland are too low to tempt the best labour into that trade, or to sustain the energies of those who come for heavy work.

The ascendancy of Lancashire over Scotland, and the ascendancy of England over Alsace, have thus been determined by superior personal energy and that alone ; yet employers, if we may judge by their testimony to the Labour Commission, go day after day to their mills, and watch the process of production, and cannot see any possibility of better personal exertion telling on the result at all. But their opposition to the proposal of

<sup>1</sup> *Factory Report*, October, 1890, p. 7.

an eight-hours day arises very largely from their imperfect realisation of that fact. "It is not possible," said one, "to match a machine, running 9 hours a day, against a foreign counterpart running 10 or 12." The whole thing, said another, "goes by clockwork, and if there is a quarter of an hour of a stoppage, there is a quarter of an hour's loss at the end of the week; it never can be made up." But with the inefficient labour of long-hour countries, there are always more of such stoppages, and the stoppages last longer. Belgian manufacturers told Mr. Kennedy, of the British Embassy, that in Belgian mills they were constantly losing half an hour trying to discover the cause of some interruption of the work which English operatives, from their better understanding of machinery were able to explain at once to the overlookers. Then much of the time machinery is nominally running is occupied in putting work on the machine and taking it off. Mr. Wigram, of the eminent engineering firm of Messrs. Fowler, in Leeds, calculates that in engineering one-fourth or one-fifth of the whole working day is spent so. We have seen that Alsatian operatives take twice or thrice as long over this sort of work as English operatives; so that they would lose a third of the day of the machinery in that way, where English operatives would only lose a sixth. Now if you cut a third off an eleven-hours day you have only seven and a third hours left of effective work of the machinery; whereas if you take a sixth off a nine-hours day you



have seven and a half hours left: and even with an eight-hours day you have nearly seven hours left—that is to say, the machine is really at work longer in the short day of England than in the long day of the Continent; and that is due to the fact that English labourers are men of greater physical and mental energy than Continental labourers; and that again is in an essential part due to the shorter hours they habitually work.

If we throw into the account the greater speed at which efficient labour permits the machinery to run, and the greater quantity of machinery it permits to be entrusted to individual hands, it becomes very plain that an hour's more running of the machinery, which employers so often represent as a matter of life or death to them, is really of very trivial importance to the product of the machinery as compared with even very ordinary differences in personal vigour and efficiency. Even according to their own utmost expectations an hour more or less in the day would only make a difference of 10 or 11 per cent. on the product; whereas a change from the more efficient labour of England to the less efficient labour of the Continent might, as we have seen, make on the same machinery a difference of 200 per cent. Machinery, so far from curtailing the importance of the personal differences, seems rather to increase it; for we have seen that in navy labour three Englishmen did the work of four Frenchmen in the lighter jobs, and six in the heavy;

but here in machine work they do 200 per cent. more—*i.e.*, three do the work of nine.

So much for the competitive value of personal energy in work. The only things in which our workpeople seem to be inferior to those of the Continent are those kinds of work for which energy is, in a sense, a disqualification. Energetic natures dislike slow, tedious, minute processes. No manner of protective duty has ever been able to induce the Americans to grow and dress their own flax, and Sir C. W. Siemens thinks that though English workmen beat the world for the amount they produce from a machine, they are behind several of the Continental nations for work needing great personal care and patient application, such as watch-making and the production of philosophical or telegraphic instruments. Still, we must take energy with its natural defects, and there can, at any rate, be no question that it is the most valuable of all industrial qualities for large production in the great staple trades.

To proceed now a step further, this national characteristic of high productive energy, which has given us the superiority over Continental countries in the industrial competition, is itself the product of those high wages and short hours which are so commonly supposed to handicap us heavily for the race. Other causes have co-operated, no doubt; climate in particular has had a considerable influence, but in the main industrial energy is the fruit of due nourishment and due repose. We are not specially concerned with wages here, but a word

or two about them may assist the argument. It used to be an old employer's prejudice that more work was got from their workpeople on low wages than on high. Arthur Young found the opinion universal among the Manchester manufacturers in last century that their men did less work in good years when provisions were cheap because they idled away more of their time; and it seems to be thought by some economists (Gävernitz and Brentano, for example) that this opinion was probably true of the old hand-labour in the age before factories, because men then wrought habitually by fits and starts. But it was not true then, for at the very moment when the Manchester manufacturers were unanimously laying down that opinion to Arthur Young, Adam Smith was refuting it by positive statistics, and showing that, spite of the time idled away by many, a greater quantity of work was turned out by the whole body. But now we are realising that, generally speaking, men's work is in almost direct ratio to their diet or, in other words, to their wages. Mr. Brassey found that agricultural labourers, when they began to work on a railway, would lie down exhausted at three in the afternoon, but after twelve months of higher wages and better food, they would get into better working condition and be able to perform their task without difficulty; and when Mr. D. Pidgeon visited the Willimantic Thread Mills in Connecticut, he found the firm supplying their younger hands gratuitously with a cup of milk and a slice of bread and butter between meals, and

owning themselves more than recouped by the increase of production which even so small a service of food enabled to be made. The best fed nations—the English and American—are the largest producers, but give other nationalities the same fare and they soon show near the same work.

It is many years since Messrs. Manby and Wilson got the French hands in their Charenton foundry to eat as much meat as their English hands, and found, as they had hoped, that as soon as the better diet had time to tell, they did nearly as much work as the English too.<sup>1</sup> Irishmen have long been notoriously poor workmen in their own country. Mr. Fox, a manufacturer in Cork and Manchester, informed the Trades Union Commission that though he paid 20 per cent. lower wages in his Cork factory than in his Manchester one, the work done cost him exactly the same in both. But the Irishman in England and America, working under the higher wages prevailing there, becomes as good a workman as any in the country. Sir I. Lowthian Bell mentions that many young Irishmen come over to the Cleveland Iron Works, and though they are not worth much at first, that “as soon as their improved style of living permits it,” they become equal to any workmen in Cleveland, both for ability and will to work. It takes time for the physical process of transmutation even in the case of individuals, but for a nation this is a long economic difficulty to surmount. A whole

<sup>1</sup> Chevalier, *Cours de l'Economie politique*, i. 116.

nation cannot raise its wages at once, because the wages it can afford to pay to-day are fixed and limited by the productive capacity of to-day. Wages and productive capacity push each other on, and the people that has the start in time is not easily caught if it manages wisely.

Now the case with regard to short hours is very much the same as with regard to wages. There are still some here and there who seem to believe in the old maxim of Richelieu, that working men are to be compared with mules, who are less spoiled by work than by repose; but on the whole the beneficial effect of reasonable repose is now generally admitted, and nobody would think it wise or profitable to return to the very long hours of the early part of the century. And here again, what is good for one nation has proved good for others; all have alike benefited in productive capacity by abandoning long hours of labour. When Mr. Scott, the eminent Greenock ship-builder, opened a yard in France, he reduced the hours of the French shipwrights from twelve to ten, and says he found it advantageous so far as he was concerned. Indeed, he raised their wages in consequence from four francs a day to four and a half, so that they must have done more work in the shorter day than the longer one.<sup>1</sup> When the hours were reduced to eleven in 1872 in Canton Glarus the manufacturers prophesied ruin, but obtained 99·15 per cent. of their old production in the

<sup>1</sup> *Trade Depression Commission*, Qu. 11934-6.

first year, and more than their old production in the next. The eleven-hours day was introduced into the rest of Switzerland in 1878, and Dr. Schuler, the factory inspector, extracts the following results from the books of a spinning mill whose machinery was too old to be speeded except very slightly. In 1876-7 in twelve hours the mill produced 372·18 ko. of yarn per 10,000 spindles; but in 1879-80 it produced 388·88.<sup>1</sup> In 1881 the Swiss factory inspector reports a tannery and a watch factory as having voluntarily reduced their hours to ten, and having in both cases found the same quantity produced in the day, and an improvement in quality.<sup>2</sup> The textile manufacturers of a particular district of Bohemia reduced their hours in 1870, and while they got at first a little less product in the day they soon got more than before.<sup>3</sup> M. Freese, window-blind manufacturer, at Hamburg and Berlin, who had reduced his hours to nine in 1890, and found the step answer, reduced them further to eight in 1892, and obtained from a majority of his hands an increase of the quantity produced without any loss of quality.<sup>4</sup> M. Heye, a glass manufacturer, near Dusseldorf, had already some years ago substituted the eight-hours day for the ten and eleven-hours day without suffering any diminution in the output of his men.

Experiences like these show that it is possible for

<sup>1</sup> *Archiv für Sozial Gesetzgebung*, bd. iv. p. 90.

<sup>2</sup> *Ibid.*

<sup>3</sup> Fränkel, *Die Tägliche Arbeitszeit*, p. 32.

*Economic Journal*, iii. 373.

Continental manufacturers to improve their competing capacity, as ours have done, by reducing their hours of labour beneath the limits generally prevailing at present, and it is very plain from the elaborate evidence laid before the Trade Depression Commission that their present long hours have never been any advantage to them or any disadvantage to us. Many instances of their successful competition against us in neutral markets, and even in our own home markets, were examined by that Commission, but in no single instance was the success of the foreign producers due even in part to their long hours. It was always due to their producing a better or more suitable article, because the English manufacturers did not possess the skill or the knowledge or the taste to produce anything so good, or because they did not take the same pains to study the wants of customers. The French beat us in silks because they knew better how to produce good dyes. Chemnitz ran us hard in hosiery, because Chemnitz managers were better designers in consequence of their better education general and technical. Belgium was for the same reason taking some of the wool trade from Scotland and Dewsbury. Bradford had lost its trade by sticking to a particular kind of stuff which the public no longer wanted, and recovered its trade again when it supplied the thing there was a market for. Its machinery was suited to the former and not to the latter, but when the proper machinery was got the hours made no difference. Belgium was cutting us out

in small arms in some markets abroad because it made a fanciful class of gun that was liked there, and had at one time sent small arms into Birmingham itself, because Birmingham could not at the moment make enough to supply its own orders. Much ado was made about importations of iron girders from Belgium, but the reason was that it was a kind of girder which was in great demand in Belgium and little demand here, and for which it was thought profitable to erect special mills for their manufacture in Belgium but not profitable to do so in England. And so the complaint and answer went round. In no case had the hours wrought anything to do with the Continental superiority. Even the linen manufacturers of Belfast, who asked for a lengthening of the day from  $56\frac{1}{2}$  to 60 hours to stop the decline of their trade, admitted that their trade was declining quite as much under 60 hours as it had since done under  $56\frac{1}{2}$ , so that the shortening of the day placed them in no worse position than they were in before.

The only long-houred nation that can pretend to compete with us in industrial energy is America, but it is more than doubtful whether its long hours give it any advantage. Americans used to claim that two of their operatives would do as much work in a week as three of ours, and they still claim, as Mr. Harris-Gastrell tells us in his most interesting Report to the Foreign Office on the subject, that American labour is 20 per cent. more efficient than English—that is, that four



Americans will equal five Englishmen. In the claim, as thus reduced, Mr. Gastrell seems disposed to acquiesce, but it is very doubtful nevertheless. In the first place, Englishmen working in America, side by side with Americans, receiving the same high rate of wages, and able therefore to live as well, seem, in some occupations at any rate, to prove themselves more efficient workmen than their transatlantic cousins. In sheer strength they are admitted to have no rivals. Mr. Abram Hewitt, of New York, the well-known ironmaster and politician, stated to the Trade Union Commission that in American ironworks they found Englishmen the best workmen; that Americans were more active and better in some of the lighter work, such as girder rolling, but when it came to puddling the heavy bars the English were better. "When we want physical force combined with skill we get Englishmen,"<sup>1</sup> and the reason, he said, was that the English are a physically better-developed race than the Americans. This view is confirmed by some statistics recently collected by the United States Commissioner of Labour of the income and expenditure of working men of different nationalities in the iron-ore, pig-iron, bar-iron, steel coal-mining, and coke industries. By nationality the return means the native country of the father of the family; in seven leading nationalities a sufficient number of families have been examined to afford a sort of solid basis of comparison, and the personal earnings

<sup>1</sup> *Report of Trade Union Commission*, Qu. 6979, 6980.

of the head of the family in each case may be taken as good enough index of the amount of his output for purposes of testing their comparative efficiency. The result shows the native-born American to stand low in the scale, and the English to be in a position of unexpected inferiority to Welsh, Scotch, and even Irish.

Number of Workers.	Nationality.	Average Income.
111 . . . . .	Welsh . . . . .	614 dollars.
62 . . . . .	Scotch . . . . .	572 „
276 . . . . .	German . . . . .	569 „
385 . . . . .	Irish . . . . .	551 „
238 . . . . .	English . . . . .	534 „
1294 . . . . .	American . . . . .	520 „
24 . . . . .	French . . . . .	463 „

Immigrant labour is thus decidedly superior to native born. It is more difficult to compare American labour—native and immigrant together—with English labour working at home; but Sir I. Lowthian Bell has made some careful investigations into the subject, and calculates, after a comparison of five American furnaces with ten furnaces of Cleveland, that the workers in an English furnace, with a shorter working day, move 2,400 tons of fuel ore and limestone in the week while the same number of Americans move only 2,100 tons.<sup>1</sup> He says also that, from the excessive heat in summer and from an unwillingness to exert themselves as our men do, it is not an unusual thing in America to have fully twice as many men to do the same kind of work in keeping and tending the slag as we have in the North

<sup>1</sup> *Iron Trade of the United Kingdom*, p. 137.

of England (p. 563), and that on an average there are in an American furnace one-sixth more hands to do one-half less work. In the textile trades, Professor Peshine Smith informs us that American manufacturers used to count that they had an advantage of 20 per cent. in the contest with English competition in the education of their workpeople alone; but that was in the days when American mills were worked by cultivated women, like the Lowell girls celebrated by Dickens and Miss Martineau, and when more than half the workpeople in English factories were unable to read.<sup>1</sup> But the Lowell girl has long left the American factories to the Irish and the French Canadian; and English workmen, except the remnant belonging to the age before the Education Act, are now better educated on the whole than American. The question has been recently reinvestigated by Mr. Schönhof by personal inquiry in Lancashire, and at Lowell, Massachusetts, and he comes to the general conclusion that the labour cost of spinning is 14 per cent. higher in Massachusetts and the labour cost of weaving 28 per cent. higher in Lancashire.<sup>2</sup> Dr. Schulze-Gävernitz compares Lancashire not with Lowell only, but with all New England, and makes the labour cost of spinning 40 per

<sup>1</sup> Mr. Mundella told the Committee on Scientific Instruction in 1868 that an educational census had been privately made of the factories and workshops of Nottingham, and showed that "the ability to read a very simple paragraph is not possessed by 50 per cent. of the people employed in our large establishments" (*Report*, Qu. 4601-3).

<sup>2</sup> *The Economy of High Wages*, p. 240.

cent. higher in New England, and the labour cost of weaving to be 26 per cent. higher in Lancashire. Yet the wages of the spinners are higher in Lancashire and the wages of weavers are higher in New England.<sup>1</sup> In both cases manufacturers get their work done cheapest in the country where they pay the highest wages. Now in spinning, the result is plainly enough due to the superior personal efficiency of English spinners, for though our climate gives us a certain advantage over American competitors by facilitating the process of spinning and lessening the waste of raw material, the whole of this advantage is estimated by Mr. E. Atkinson, the American economist, as making a difference of only 7 per cent. to the cost; and here we have a difference of 14 percent. at Lowell and 40 percent. in New England generally. But in the matter of weaving there are certain circumstances which interfere with the exactitude of the comparison. An American weaver attends to six or eight looms (in Lowell the average is six and three-quarters), while the English average is not more than four; but the English looms go a little faster; they produce, as Mr. Schœnhof admits, a sightlier, better-finished, and more marketable article, and they produce a much greater variety of fabrics. In this last respect, Mr. Schœnhof, accustomed to American methods, was amazed when he visited a large mill at Salford, to see 3,100 looms at work and not twenty of them employed on the same kind of article. In America one mill confines

<sup>1</sup> Schulze-Gävernitz, p. 156.

its attention to one class of article, and the workpeople are naturally able to turn out a greater quantity in consequence of this greater specialisation. Besides, the variety in English production tends to vitiate comparison by looms, for looms are of different width for different fabrics, and one class of goods needs more personal care than another. Nor must it be forgotten that the American works as a rule in a much roomier, airier, and better ventilated mill than the English, and that is an advantage—happy attainable—which tells most appreciably on the amount of the worker's production. I take no account of the fact that the English weaver works only  $56\frac{1}{2}$  hours in the week, while the Massachusetts weaver works 60, because that has been proved to be no disadvantage to the English weavers, for, as Mr. Birtwistle explicitly informed the Labour Commission, they produce now in the  $56\frac{1}{2}$  hours *four per cent. more* than they produced before in the 60, and all in consequence of their increased personal exertion.<sup>1</sup> It may be noted too that although the hours at Lowell are only 10 a day, while in the most of New England they are still 11, Lowell is a much more formidable rival of this country than the New England States generally. It goes far nearer us in the spinning, and beats us by more points in the weaving. The longer the day the weaker the competition.

On the whole the evidence available to us does not appear to support the old opinion once so generally en-

<sup>1</sup> *Report of Labour Commission*, Qu. 1539.

tertained of the distinct superiority of American over English labour in productive capacity, and as the Americans are generally admitted to enjoy a better diet, it must be the fault of their longer hours that they do not show a better result. It seems likely, from the remarkable way in which all English observers speak of the pace Australians work at, the "go" they put into their work, the quantity they get through in the time employed, and their brisk cheerful and robust appearance, that if we are to meet our betters anywhere in mere energy in work, we must go for them now to the short-houred labour of Australia instead of the long-houred labour of the United States. The late Admiral Sir George Tryon said that though Australian workmen got high wages they always gave good work for it and never dawdled, and Captain Henderson, R.N., said they coaled a ship three times as fast as English labourers. And whereas the American-born workman, as we have seen, appears to be inferior to the English, Scotch, Welsh, and Irish immigrants in America, the best workman in Australia is said to be the Australian born.

In the cotton industry the great fear at present seems to come from the competition of India; and the competition of India of course must not be despised. For the Indian manufacturer has many advantages. He has his raw materials and his market at his very door, and he has abundance of cheap and by no means handless labour, but wages have recently been rising very

much upon him, the climate will always be against him except for spinning the coarser numbers, his coal is very dear, his plant costs him 50 per cent. more than it would in England and wears out sooner, and when he has won any advantage hitherto it has not come from cheaper production than ours, but, exactly as in the Continental successes already mentioned, by production more suitable for the markets in which the successes have been won. Several of the witnesses examined at the Manchester Chamber of Commerce Inquiry into this subject explained that the reason why Chinese buyers prefer Bombay goods to English is that the Bombay spinners in order to please the Chinese, spin a special soft yarn which makes a more velvety feeling cloth and takes in, besides, the cheap Chinese dyes better than the hand-spun yarn of England, whereas the English spinners are quite unacquainted with the wants of the Chinese and do not produce what they like. Long hours and short hours have nothing to do with the result. If the hours of England were long and the hours of Bombay were short, the Chinese would still buy their goods all the same from the people that suited their taste, and give the go-by to the goods of the people that gave no thought to the requirements of the market they were making for.

In fact in any case, nothing is more obvious than that the long hours of India, of which so much ado is made in Manchester, cannot be considered in any sense among the native manufacturer's advantages. In

Calcutta the hours of cotton operatives are really shorter than in Lancashire. The mills run 12 hours, but the operatives work in three shifts and none are in the mill more than 9 hours a day.<sup>1</sup> When we recollect the easy way in which Indian workpeople leave their work for a smoke or a drink or a talk whenever they feel inclined, we have no difficulty in understanding that in Calcutta the time of actual work is considerably less than at Manchester. But even in Bombay, though the operatives might be nominally on duty in the mill for the whole 12 hours, Mr. Moos, the chief factory inspector of the Presidency, says they are such persistent dawdlers that they never really did more than 6 hours work out of the 12.<sup>2</sup> Dr. Babadhurgi of Bombay, said at the Hygiene and Demography Congress in London in 1891, that to compare an Indian with an English factory worker was like comparing a buggy hack with a race-horse. The Hindoo liked to take his time to everything. He had half an hour's grace both in coming to the mill and going. When he came he could take his shave and his shampoo in the mill, he could go out and in whenever he liked without any restriction except that not more than a fourth of the whole hands must be out at any one time, and 15 or 20 per cent. of his stated hours at the mill was every day spent in lounging in the compound. The women brought their children to the mill with them

<sup>1</sup> *Report of Commission on Indian Factories*, 1891, p. 33.

<sup>2</sup> *Labour Commission, Foreign Reports*, vol. ii., p. 136.



and attended to them there. Then besides these intermissions of work on the days they are present, 20 per cent. of the hands are usually absent altogether—10 per cent. without sending any substitute and 10 per cent. sending in some friend—not likely to be so efficient a worker—to take their place. A mill employing 2,450 hands is mentioned in the Factory Commissioner's report, from which 250 persons, on an average, stopped away every day without sending any substitute, and 200 more stopped away but sent substitutes.<sup>1</sup> And the manager of the mill said it could be worked with 500 hands in England. This was at Nagpur, but the state of things is the same in Bombay. Mr. J. C. Fielden told the Manchester Chamber of Commerce that while a mill in Oldham with 30,000 spindles, and spinning No. 20 would require 240 hands, it would require 750 in Bombay, and Mr. Greaves stated that a 40,000 spindle mill in Bombay would require 760 hands, of whom 10 per cent. would be away daily for a holiday. Then it must be remembered that in English mills the machinery runs much faster, so that while one of the best mills in Bombay, with good machinery, would only turn out 5·60 ounces per spindle in its long day of 12 hours, an Oldham mill will turn out 24 ounces per spindle in its shorter day of 9.<sup>2</sup>

In the face of facts like these it is the merest foolishness to tremble before the long hours of India,

<sup>1</sup> P. 54.

<sup>2</sup> *Manchester Chamber of Commerce Inquiry*, p. 88.

whatever other elements there may be in the competition of that country to give rise to anxiety. And after all, the question for the cotton operative and cotton manufacturer of this country is not whether we are producing as much in our short hours now as other nations are producing in their long ones, but rather whether we shall be able to produce as much, if we shorten our hours to 8, as we are producing now in 9. If we cannot do so, then we shall to that extent injure our powers of competition; but if we can, our position is unaltered and we can safely act for ourselves without caring a straw what other nations do in the matter. That point remains yet to be tested experimentally in the cotton industry, but there is at least nothing in our past experience of reductions of hours in that industry or our present experience of the eight-hours day in other industries, to make fear a more reasonable attitude to take than hope, and hope has at any rate this point in its favour, that it will try the experiment.

So far then as things have yet gone the shortest-houred people are the best workers. As we have shortened our hours we have improved our competing capacity. And the question now comes to be whether we shall do the same again by the further shortening which is now proposed. It is manifest that this experience cannot be repeated indefinitely, and that there must be a natural limit after which the time remaining for work will be too little for the improvement

to tell to the required extent on the result. And in reply to the question which many persons think an unanswerable *reductio ad absurdum*—Where are you to stop? when you get 8 hours, will you then want 6? and when you get 6 will you ask for 4?—the answer obviously is, stop when the limit of profitable improvement is found to be reached; stop when the day is shortened just not too far for the resulting increment of energy to make up for the loss of time. This is a point which can only be ascertained by experimentally feeling our way, but happily for the eight-hours cause it has been proved by a far greater number of practical experiments than ever before preceded any general reduction of hours, that this point of profitable improvement is not transgressed by the proposed reduction, and that as much work or more is done in the shortened day and the men left with more energy remaining in them at the close. As compared with this the Ten Hours Act was a leap in the dark. Macaulay, in repelling the alarm then current about foreign competition and the loss of our commercial prosperity, could only appeal to general considerations, showing by many illustrations that it was on the intellectual, physical, and moral energy of their manhood that the wealth and prosperity of nations depended, and expressing the general faith—the faith of the social reformer—that a change which would clearly be found to improve the moral, physical, and intellectual character of a people could never make them poorer. The Ten Hours Act

and every other step in our factory legislation have confirmed that faith, but we have much more than that general faith of the social reformer to stand on here.

It is not merely the number of the successful eight-hour experiments that is so striking, but also the great variety of the industries in which they have occurred, the frequency with which the old amount of production has been exceeded, and then, over and above all, the positive improvement that has ensued in the physical and even moral condition of the labourers. They have gained alike in health, morals and intelligence, so that we may reasonably expect the next generation of eight-hours workpeople to be not only more efficient while at work, but to have a longer term of efficient working life. Who shall estimate the value to the nation of an addition of say ten years more efficient work from the great body of her workpeople.

Whether this increase of efficiency will happen depends, of course, largely on the men themselves, and perhaps among the worst accusations brought against the British workman at the Labour Commission is that he is deteriorating in efficiency through deliberate restriction of his production. I do not speak of the farmers' complaints of the deterioration of the agricultural labourer, for that is admittedly due to the better men preferring to go to other trades or other places, and is merely the natural penalty for the low wages farmers are able to offer. But Captain Noble and others asserted that in engineering, as a result of unwise trade union

policy, the best workmen of the present day are far inferior to the best workmen of the past, and the Central Association of Master Builders sent five representatives to the Commission, who all agreed in saying that the operatives in the building trades do much less work in the hour now than they did twenty or thirty years ago. "Where it used to be the custom for a good bricklayer to lay a thousand bricks a day, 300 or 400 is about the usual thing now; the cost of labour has increased from 40s. a rod, which it was thirty-five years ago, to 80s. or 90s. now." Where he used to lay one hundred bricks an hour, he lays an average of fifty now. The joiners were in the same case. "With regard to joinery, we use machinery, and give the use of machinery, and we pay just as much for making a four-panel door as we did twenty-five years ago. The whole object at the present day is to do as little work as possible."<sup>1</sup> The bricklayers have often been accused on very frivolous and even absurd grounds of deliberately restricting their production in various ways as a matter of trade policy, but this is a definite and serious accusation which ought to be answered. Their deterioration cannot of course affect our position with regard to foreign competition, except indirectly, through increasing the cost of factory buildings, in which respect we have always hitherto had an appreciable advantage over the United States; but if this policy of deliberate restriction were adopted by the trades ex-

<sup>1</sup> Qu. 32196, 32280, 32300.

posed directly to foreign competition, it would obviously be ruinous to the manufacturers in this country ; and it is unfortunately that policy of restriction that is the chief danger of the eight-hours movement, because it is by a profound mistake believed by so many eight hours advocates to be the great source of any advantage they expect from the shorter hours.

---

## CHAPTER V.

### THE EIGHT HOURS DAY AND THE UNEMPLOYED.

THE eight hours day is usually preached both with most fervour and with most success as a gospel for the unemployed. No other argument has been so prominent or so influential in the present movement as the promise of mitigating and perhaps extinguishing that most unnatural of our social maladies, the unwilling idleness of willing hands. Nor is this any wonder, for what can be more captivating than the hope of seeing that troublesome malady become as obsolete as the plague? and what can at first sight appear either a surer or an easier way of making work for the idle than cutting a few hours off the work of the busy? The work seems already found, and nothing to remain but count in the men to do it. It is a simple sum in arithmetic. If 5,000,000 labourers do each twelve hours a week less work than they do now, how many supplementary labourers must you call in at 48 hours a week to supply the 60,000,000 hours' service which the original staff

have ceased to render? By calculations of this description—which presuppose that when a great change is made in the hours of labour all the other conditions of the problem will yet remain unchanged—Mr. W. Abraham, M.P., thinks himself warranted in predicting that the general adoption of the eight hours day in England would provide work for 750,000 new hands, while Mr. Gunton, President of the New York Institute for Social Economics, and author of a work entitled *Wealth and Progress*, which has exerted considerable influence on opinion on this subject, goes so far as to say that the “direct and immediate effect” of the general adoption of the eight hours system in the manual trades of the United States, even excluding the great occupations of agriculture and domestic service, would absorb not only all the unemployed labour of that country itself, but all the unemployed labour of England, Wales, Scotland, France, and Germany as well. It would create employment, he calculates, for 3,552,059 more adult labourers; and as he can only find 1,000,000 of these in his own country, he is obliged to resort to Europe for the remainder. “This,” he adds, “is not a fanciful speculation based upon an imaginary expansion of our home and foreign market, but it is what would necessarily result from the natural operation of economic forces in the effort to supply the normal consumption.”

Now all this is entirely illusory. It stands in absolute contradiction to our now very abundant experience of the real effects of shortening the hours of labour, and



it stands in absolute contradiction to the natural operation of economic forces to which it professes to appeal; and the illusion arises (1st) from simply not observing or apparently caring to observe the important alteration which the introduction of shorter hours itself exerts on the productive capacity of the workpeople; and (2nd) from yielding to the gross but evidently very seductive economic fallacy, which leads so many persons to think that they will all increase the wealth they individually enjoy by all diminishing the wealth they individually produce, and to look for a great absorption of the unemployed to flow from a general restriction of production, the very thing which in reality would have the opposite effect of reducing the demand for labour, and throwing multitudes more out of employ. It is worth while, however, examining more closely an illusion at once so popular and so persistent.

Taking the evidence of experience first, what has been the effect upon the unemployed of previous reductions of the hours of labour? What, for example, was the effect of the Ten Hours Act? That was a short-hour experiment on the very largest scale, since it took 11 hours a week off the working time of no less than 500,000 textile workers, and it ought, therefore, on Mr. Gunton's principle of calculation, to have provided room for 90,000 new hands. How many new hands did it in the actual event make room for? Now we possess sufficiently satisfactory statistical records to guide us to the substantial truth on this point, and the

evidence thus supplied compels us to the surprising but irresistible conclusion, that instead of making room for 90,000 extra workers the Ten Hours Act could not possibly have made room for 1,000, and most probably did not make room for a score. This, if true, is a fact of ruling and decisive importance, and I will therefore state particulars.

The Ten Hours Act came into full operation on May 1, 1848, and there is a parliamentary return of the number of persons employed in factories in the United Kingdom in April, 1847, immediately before the Act was passed, and another parliamentary return giving the number employed in them in July, 1850, after the Act had been two years at work. Both the returns are practically complete except in regard to the children employed in the silk trade in 1850, for though two or three firms (one of them being, it may be interesting to mention, John Bright and Brothers, of Rochdale) refused to supply the information Parliament desired, they were too few to affect the results.

The total number of factory operatives in the United Kingdom in 1847 was 544,876; but the Act did not affect the hours of all that number. It legally reduced the hours of females and young persons from 69 to 58 a week (the hours were raised again to 60 in 1850), and it had the practical effect of reducing the hours of adult males as well in 90 per cent. of the factories of the kingdom; but it did not touch the hours of the children under 13, who numbered 42,882, nor of the adult male

workers in a certain proportion of factories, which continued to keep their adult males at work for an hour or two after the women and young persons were obliged to leave. This practice was confined to a few localities, particularly the towns of Ashton, Stalybridge, and Oldham, which Mr. Horner thinks worthy of especial reproach, because the adult males of these towns were amongst the most prominent advocates of the Ten Hours Bill, and yet after the Bill passed they were ready in any number, he said, to work  $13\frac{1}{2}$  and even 15 hours in the day. But though confined to certain localities, the practice applied to probably not less than 16,000 adult males. For most of these factories employed an extra shift of children to work along with the men after the women and young persons had to leave, and a return made in 1850 showed that there were then 257 factories that did so, and that they employed 3,742 children on these extra shifts. Now there was one child for every 3·2 adult males in factories generally in 1847, and if the same proportion obtained in these 257 mills the number of adult males would be 11,974. But there were other mills which kept their men employed extra hours without engaging children to accompany them, and Mr. Horner gives us a clue to their number by mentioning that out of 1,061 factories visited in 1850 by five of his sub-inspectors, 136 employed adult males after hours, but only 95 of these employed extra shifts of children. If the same proportion prevailed in the rest of the kingdom, there would be in this class of mill

above 4,000 adult males whose hours were not shortened, but rather lengthened, by the new Act. We have thus to make a deduction of 42,882 children and 16,000 adult males whose hours were not restricted by the operation of the Act, and that leaves 485,994 as the number of operatives whose hours were actually diminished. The total amount of the diminution therefore was 5,345,934 hours a week, and that would, on Mr. Gunton's principle, create room for 92,170 new hands.

Now how many new hands were actually taken on? The total number of factory operatives in the United Kingdom in 1850 was 596,082, so that the whole increase from all causes together since the previous factory census of 1847 was 51,206—not much more than half the number Mr. Gunton would have anticipated; and the question comes to be, how much even of this increase, if any, is to be ascribed to the operation of the Ten Hours Act, and how much of it can be clearly ascertained to be due to other causes? The influence of other causes on the result is very apparent in the extreme inequality in the rate of the increase in the different textile industries, as the following table will show:—

Manufactures.	Operatives 1847.	Operatives 1850	Increase.	Decrease.	Percentage of Increase.	Percentage of Decrease.
Cotton . .	316,327	330,924	14,597	—	4·4	—
Woollen . .	73,406	74,443	1,037	—	1·4	—
Worsted . .	52,178	79,737	27,559	—	52·8	—
Flax . . .	58,258	68,434	10,176	—	17·4	—
Silk . . .	44,707	42,544	—	2,163	—	4·8

A uniform reduction of 16 per cent. in the hours is thus not by any means followed by a uniform increase of 16 per cent. in the demand for labour, but by an increase of 52 per cent. in one industry and only 1 per cent. in another, while in a third it is followed apparently by a positive decline. Other causes of less uniform operation have therefore at least contributed to the result, and we must first, if possible, deduct their contributions before we can ascertain what, if anything, has been the contribution of the Ten Hours Act. Now the chief deductions must be made for the general effect of the ordinary growth of trade, as shown by the new mills opened and the increase in spindles, looms, and power, and for the special and very important effect of the revival of trade in 1850 in reabsorbing the multitudes thrown out of employment by the extraordinary commercial crisis of 1847.

The returns of 1847 were taken in March and the beginning of April, when this great crisis had already run three months of its acute stage, and was fast approaching its height, and a note is appended to the returns by the factory inspectors who collected the figures, stating that "a considerable number of factories being at present unoccupied and only partially at work, in consequence of the depressed state of trade, the total number of those now employed in the factories of the United Kingdom is, of course, not so great as in ordinary times of prosperous trade." All the textile industries were seriously depressed at the time this

factory census was taken, except perhaps the silk manufacture; and the great cotton industry, to which 60 per cent. of the operatives belonged, was in a condition of unexampled distress, because, besides the general causes producing depression in the other industries, the cotton manufacture suffered from an additional trouble of its own—the high price of its raw material, resulting from a deficient cotton harvest. Mr. Howell, one of the factory inspectors, says in his report of May 20, 1847 :

“During the half-year ended on the 30th ult. a lamentable and increasing decline has been observable in the several branches of manufacture subject to the Acts for regulating the labour employed in factories. . . . The distress has been, and continues to be, the most severe in the cotton districts, in which it is impossible to exaggerate its extent, but it has also reached other branches of industry, many factories being entirely closed, and the remainder working but very short hours. Very recently full employment was afforded in the silk-throwing mills, but in these also short time has been lately commenced.”

Now trade had recovered from this depression when the second factory census was taken in July, 1850, except in certain branches of the cotton trade, and to a slight degree in the silk trade; in both cases, on account of the high price of their raw materials at the time. Mr. Horner, on 31st October, 1850, reports that while there was considerable depression in those branches of

cotton manufacture in which the price of raw cotton constituted a considerable part of the cost of production, trade in the flax mills had improved, and there was great activity in the woollen mills. Mr. Saunders, on the same date, has the same story to tell of his district: "With the single exception of the manufacture of heavy cotton yarn and cotton goods, every branch of trade brought under my notice has partaken more or less within the last few months of the general activity which has prevailed throughout the manufacturing districts." He adds that the flax trade was one of those which had partaken largely of the increased demand for goods, but that the greatest activity of all had been in the worsted trade. Now can we measure the respective effects of this remarkable depression and of this remarkable revival of trade on the ranks of the unemployed? Data exist, I think, by which that can be trustworthily done, but as both the depression and the revival affected the respective industries in different ways and degrees, it will be necessary to consider each industry by itself.

To begin with the cotton trade, Mr. Horner reports in December, 1846, that during the six weeks previous several mills had begun to work short time, and that a period of general and continued depression was approaching. The depression advanced with great rapidity. In January many mills were closed, and in March, when the factory census was taken, it was already in a most acute stage. We can follow the course of the crisis with

tolerable precision by means of official returns published week by week at the time by the *Manchester Guardian*, and these returns constitute also a very fair and useful gauge of the number who were actually unemployed at the date of the factory census. From these returns it appears that there were then 177 mills of all kinds in Manchester, that they employed when in full work 40,333 operatives, and that 23 of those mills were stopped and 7,243 of their operatives were out of employment on the 23rd of March, 1847. The following table will show the course of the depression.

Date.	Mills stopped.	Unemployed.
January 9 . . . . .	10 . . . . .	1,691
February 16 . . . . .	19 . . . . .	5,600
March 23 . . . . .	23 . . . . .	7,243
April 21 . . . . .	23 . . . . .	6,643
May 21 . . . . .	28 . . . . .	9,149
June 1 . . . . .	35 . . . . .	12,167
June 22 . . . . .	24 . . . . .	9,136
July 13 . . . . .	20 . . . . .	8,580
November 20 . . . . .	23 . . . . .	9,795

Now three-fourths of these unemployed workpeople were cotton operatives, for on November 20 the *Guardian* begins to classify the mills according to their industries, and 19 of the 23 then closed were cotton mills and 7,364 of the 9,795 then unemployed were cotton operatives. As the same proportions no doubt prevailed in March we gather that there were then 5,430 cotton operatives out of employ in Manchester alone; and since there were 91 cotton mills in Manchester at that time and 28,033 operatives in them when fully employed, we arrive at the conclusion that close on 20



per cent. of the cotton workers of that city were unemployed when the factory census was taken. Things were not quite so bad in other towns, regarding which, however, our information is not so exact. The *Guardian* of April 28 states that in Oldham out of a full strength of 20,000 hands 2,000 were then out of employ. In Rochdale 21 mills were stopped and 3,000 mill-workers unemployed. Six mills were stopped in Blackburn, nine in Preston, and so on. But it is well within the mark to estimate the number of the unemployed in the cotton manufacture in March, 1847, at 10 per cent. or something over 30,000 persons. This estimate is corroborated by other facts. According to the factory census of 1838 there were 259,000 cotton operatives in the United Kingdom; but so rapid was the transition from the domestic to the factory system between 1839 and 1846 that Mr. Horner reports an increase of horsepower during that period in the cotton mills of his district alone which would employ 60,000 hands, and as his district contained two-thirds of the cotton factories of the kingdom we may fairly set down the whole increase at about 90,000, making the total number of cotton operatives in 1846 a little above Mr. Ellison's estimate of 340,000.

Over 30,000 cotton workers, then, were out of employ in March, 1847, and only 14,597 of them were taken back in July, 1850, and the difference is entirely accounted for by the change in the state of trade. The consumption of raw cotton in the United Kingdom,

which had been 614,300,000 lbs. in 1846, fell to 441,400,000 lbs. in 1847, and had risen again to 588,200,000 lbs. in 1850, so that while the production of the cotton factories was 28 per cent. below its normal quantity in 1847, it was only 4 per cent. below it in 1850. The cotton trade must therefore have largely recovered its former prosperity, and this increase of 24 per cent. in the production is surely more than sufficient to explain the increase of 4·4 per cent. which took place in the same period in the number of cotton operatives employed. Where, then, is the effect of the Ten Hours Act? Apparently nowhere. It came into force when there were 30,000 cotton operatives out of employ, and as far as we can see it did not make work for one of them, although according to computations like Mr. Gunton's it ought to have created an immediate demand for 55,464 hands; for after the Act has been two years in operation we find that only 14,597 more hands have been engaged, and that their engagement has come entirely from the revival of trade. So far as the cotton trade is concerned, the Ten Hours Act, therefore, cannot be credited with reducing the ranks of the unemployed by a single unit.

The woollen industry was not so seriously or so generally distressed in 1847 as the cotton. It was not depressed in Scotland at all, for even in November Mr. Stuart, the inspector for the Scotch factories, reports that the 28 wool-mills of Hawick and Galashiels and the Tweed country, and the large wool-mills of Aberdeen-

shire, were all working full time, though a fifth of the cotton factories of Glasgow and a fifth of the flax factories of Dundee had been obliged to close. But in England the woollen manufacture had been depressed since the middle of the previous year. The great seats of the industry were in the districts of Mr. Howell and Mr. Saunders, and Mr. Howell, as we have seen, says that many mills in all branches of industry were already closed before May, 1847, while Mr. Saunders states in November, 1846, that out of 173 wool-mills in the Leeds and Bradford districts, seventeen were then closed; in May, 1847, that the condition of the working classes was worse than he ever remembered it to have been since he began inspecting factories in 1833, though the manufacturers were trying their utmost to retain their best hands by running short time; and in November, that the wool-mills of Leeds and Bradford were only running one or two days a week, and that out of 560 mills in the Huddersfield and Dewsbury districts, mostly woollen though partly also worsted and flax, fifty were then entirely stopped, which, he says, was about twice the usual number. There are always 3 or 4 per cent. of our factories unoccupied for one reason or another.

The state of the wool trade in March, 1847, would therefore seem to be this: that in Scotland all the operatives were at work, but in England at least 4 or 5 per cent. must have been unemployed. Let us take the lower figure of 4 per cent. Then since there were 62,687 woollen operatives employed in England alone in

1847, there must have been then 2,500 unemployed; but in 1850 the English woollen operatives numbered 64,426, showing an increase of only 1,739, and the revival of trade accounts for all that. The Ten Hours Act ought, on Mr. Gunton's principle, to have created employment for more than 10,000 persons in the wool manufacture in England alone, but there is absolutely no trace of it having made any impression of that sort whatever. And in Scotland its impotency is still more striking, for while there were 9,637 operatives in the wool-mills of Scotland in 1847, there were only 9,464 in 1850, a decline of 193 in spite of the reduction of hours.

The worsted trade was more depressed than the woollen in 1847, but it enjoyed a very exceptional and extraordinary run of prosperity in 1850. It appears from Mr. Saunders's reports that the depression in this trade began about July, 1846, and got worse and worse till the spring of 1848, when the tide turned and rose gradually to unprecedented heights. In November, 1846, however, out of 253 worsted mills in the Leeds and Bradford district (in which probably nine-tenths of the worsted trade of the kingdom was carried on), thirty-eight had stopped working, and in the mills still at work one-third of the spinning machinery was idle. If things were in this state in the end of 1846, they could not help being worse rather than better when the general monetary crisis came in the spring, and it is therefore impossible to think that there were fewer

than 10 per cent. of the worsted operatives unemployed at the date of the factory census, or about 5,700 persons. This estimate is corroborated by figures supplied by Mr. Saunders. There were 48,097 worsted factory operatives in his district in 1845, and as his district contained 94 per cent. of the worsted operatives of the kingdom, there would be 50,982 in the whole country. They were then increasing, moreover, at the rate of 14 per cent. per annum, and at that rate would in 1846 number 58,110, of whom only 52,178 were at work in March, 1847, leaving 5,932 unemployed. But as there was an increase in 1850 of 27,599, it is plain that the re-absorption of unemployed operatives goes but a little way towards explaining the increase. Other influences existed, however.

That was the period in which a rapid transition was going on from the domestic to the factory system, and the process was not disturbed very much by seasons of depression. When times were bad there seemed even more reason for resorting to cheaper methods of production, and Mr. Horner mentions that even in the half-year ending April 30, 1847, eighteen new mills had been opened in his district alone. This increase of factories did not, of course, always imply any actual increase of operatives, but merely a transference of hand workers to the mills. It brought these latter workers, however, for the first time into factory statistics. and would tend so far to raise the figures of the return of 1850 above the figures of the return of 1847. The

power-looms in the worsted trade in Mr. Saunders's district increased from 16,870 to 19,121 in the two years between 1843 and 1845—*i.e.* by almost 7 per cent. per annum. The worsted operatives in the same district increased in the same period from 37,060 to 48,097, or by 14 per cent. per annum, in consequence of the natural growth of the worsted trade, and of the factory system. The spindles must in these two years have increased faster than the looms, correcting the balance of the two previous years 1841-3 in which the looms increased 23 per cent. and the operatives 5 or 6 per cent. But on the whole this natural process had since 1838 been increasing the worsted factory operatives by 9 per cent. per annum, and if it continued at the same rate would in the three years 1847-50 have added 14,000 to their number.

But the rate was exceptionally accelerated during these particular years by the extraordinary outburst of prosperity in the worsted trade that prevailed all the time between the two censuses. It began immediately before the Ten Hours Act came into operation on May 1, 1848, for it is already mentioned in Mr. Saunders's report for the half-year ending April 30 of that year, and before November it was in full swing. "At one time," says Mr. Saunders in his November report, "every worsted loom was at work for which experienced hands could be obtained," but he adds, "the worsted spinning has not prospered in the same proportion as the weaving, arising from the loss of demand from the

Continent. Many worsted frames have never been set to work for months past." The demand for yarn abroad seems to have fallen off, but a new demand had arisen at home for worsted stuffs, and it was this new demand, and not the ten hours restriction, that led to the employment of more labour. "The manufacturers," says Mr. Saunders, "have been able not only to dispose of the stock of goods on hand at much less sacrifice than was apprehended, but in many branches there has been a demand for further supply which could only be met by increasing the hands employed and the number of hours at work. The reduced price of all raw materials required for consumption has promoted to a great extent this activity, but much of it has been the result of a legitimate demand for goods principally for home consumption. The worsted and woollen manufacturing trades are trades in which the greatest activity has prevailed." He wrote this in his report for November, 1848, the first after the Ten Hours Act came into operation, and he has not a word to say of any influence that Act exerted upon the situation. The burst of prosperity which he mentions, moreover, went on increasing, so that in his next report, in May, 1849, he mentions that strikes for higher wages had not been uncommon among the worsted workers. He says large numbers of migratory hands were required to be imported from Ireland, who were then creating much turbulence in the worsted districts, and Mr. Horner states that the handloom weavers were kept busy as

well as the factory hands. The cause was apparently a new movement of fashion in feminine dress. Most of the goods classed under the head of worsted, as Mr. Saunders explains, were mixed cotton and woollen stuffs; and Mr. Horner, in April, 1850, mentions that while all branches of industry were increasing their mills and machinery, there was an especial activity in *mousseline de laine*, "a mixed fabric of cotton and wool," he says, "which is used when figured for women's dresses." A special run on this class of mixed fabrics seems to have come in during the spring of 1848, and it seems to have gone out again in the spring of 1851, for Mr. Saunders then reports the worsted trade to be in a more unsatisfactory state than any other, and the high profits of 1850 to be already away. It was comparatively recently that mixed fabrics had come into vogue at all, and the remarkable extent of that vogue may be seen from figures supplied from private sources by Mr. Edward Baines, in a paper read at the Leeds meeting of the British Association in 1858:

QUANTITIES OF WORSTED STUFFS EXPORTED.

Year.	Worsted Stuffs (unmixed).	Mixed Stuffs (Worsted and Cotton or Silk).
1830 . . . .	1,252,000 pieces . . . .	1,100,000 yards
1840 . . . .	1,718,000 ,, . . . .	3,629,000 ,,
1850 . . . .	2,122,000 ,, . . . .	52,573,000 ,,

Both classes of stuffs progressed moderately before 1840; but in the next ten years, while the unmixed fabrics increased 23 per cent. the mixed fabrics increased by the amazing figure of 1,379 per cent. The use of



cotton warps brought into the market not only cheaper stuffs, but an immense variety of them, and as they got better known the demand for them came in bounds and bursts. It was evidently one of these bursts of which we see the sign in the enormous increase of 52 per cent. in the number of worsted factory hands in the brief period between 1847 and 1850, and it seems likely that the whole of this increase which is not accounted for by the reabsorption of the unemployed and the regular growth of the factory system, is due to that burst of extraordinary demand for this new class of goods. This seems likely, because Mr. Saunders informs us in April, 1850, that in the year 1849 alone the worsted looms increased their produce 40 per cent., and the spindles 25 or 30 per cent., and that they were still increasing at the same rate. Many mills ran night and day by means of relays, so that, whereas the number of hands per horse-power in worsted mills was only 5·7 in 1845 and 5·9 in 1856, it was 7·4 in 1850. The enormous increase of production is shown in the export returns. These returns, it is true, did not then distinguish worsted goods from woollen as they do now, but I understand that worsteds would constitute then, as now, three-fourths of the entire export. Well, the quantity exported in 1847 was exceeded by 56 per cent. in 1848, by 60 per cent. in 1849, and by 97 per cent. in 1850; and as the whole deficiency of 1847 (judging from declared values) was only 17 per cent., the production of 1850 was 80 per cent. greater than

the normal production before 1847; and that must have required 40 per cent. more hands, or 20,870. The whole increase of operatives was 27,559, and after deducting 5,700 for the reabsorption of unemployed, and 20,870 for the natural growth of the factory system, together with the unusual increase of demand for worsted goods, there are only 989 left, that may *possibly* have owed their employment to the Ten Hours Act.

The flax and silk trades need not detain us so long. In November, 1846, according to Mr. Saunders's reports, the flax trade was suffering above others. Out of forty-six flax mills in one of his sub-districts seven were wholly stopped, and about a third of the flax spinning machinery was lying idle in the works that remained open. Times got worse in the spring, when the general commercial depression set in, and in October, as Mr. Stuart states, seven flax mills out of twenty-three were closed in Belfast, and ten out of fifty-six were closed in Dundee. It is therefore probable that 10 per cent. of the flax mill operatives were out of employment in March, 1847—*i.e.* about 6,000 persons. The flax trade, on the other hand, was one of the briskest in July, 1850; Mr. Saunders says it had partaken largely of the increased demand for goods; and we find from the statistics of the quantity of linen manufactures exported, which only began first to be collected for the year 1848, that the linen exports of 1850 exceeded those of 1848 by more than a fourth. Indeed, if we carry back the comparison by the less exact means of the declared values

of the estimates for want of any better means, the linen exports of 1850 were a sixth larger than they had ever before been, so that not only must all the unemployed of 1847 have been now reabsorbed, but there was an additional growth of trade and productive means, which implied an increase of hands beyond the full working staff of that date. We know from the factory inspectors' reports that the same process of factory building was continually going on in the flax trade as was going on at the same time in the other textile industries. In Mr. Saunders's district the horse-power in flax mills increased 10 per cent. in the five years 1845—1850, and the hands increased 11 per cent. It cannot be too high an estimate to set aside 4 per cent. for the natural increase of the flax trade and the factory system in the three years 1847—1850. Now, as the total increase of flax operatives in that period was 14 per cent., and it has been necessary to deduct 10 per cent. for re-absorption of unemployed, and 4 per cent. for natural development, nothing remains for the Ten Hours Act.

The returns for the silk manufacture are imperfect so far as the number of children employed in 1850 is concerned, and as the trade is not important and the others have taken up so much space, I need not enter upon it at all. In fact, the figures for the cotton trade alone are quite sufficient to prove that the Ten Hours Act made no sensible impression on the unemployed, and the reason is given by Mr. Horner in October, 1851 :—

“In all those departments of the factory in which

men are paid by piecework (and these constitute probably not less than four-fifths of the whole, the proportion to fixed weekly wages being daily on the increase) it has been found that the quantity produced in ten and a half hours falls little short of that formerly obtained for twelve hours. In other instances it is said to be equal. This is accounted for partly by the increased stimulus given to ingenuity to make the machinery more perfect and capable of increased speed; but it arises far more from the workpeople, by improved health, by absence of that weariness and exhaustion which the long hours occasioned, and by their increased cheerfulness and activity, being enabled to work more steadily and diligently, and to economise time, intervals of rest while at their work being now less necessary."

This experience is the more remarkable because it occurred in trades in which automatic machinery is universally employed, and the pace of the living agent is largely determined by the speed of the mechanical agent. If there is so much room for improvement in the personal energy of workpeople to tell in industries like these, it can be no source of surprise to find the same results in the common run of industrial occupations. Professor Munro has drawn attention to the circumstance that when the hours of engineers in this country were reduced from ten to nine a day in 1872, it made hardly any perceptible impression on the numbers of unemployed members of the Society of Amalgamated Engineers, there being 510 unemployed in

1871, 397 unemployed in 1872, and 465 in 1873. Professor Munro thinks this result probably due to the introduction of improved machinery, but the truth seems rather to be that no real reduction in the hours of labour occurred at all, and that the only change which actually took place was the payment of one hour more at overtime rates and of one hour less at ordinary rates. Mr. Redgrave, the factory inspector, states in 1872 that all the nine-hour trades wrought systematic overtime, and mentions the case of an engineering firm that had recently adopted the nine hours' system, but whose men, though nominally working fifty-four hours a week, were actually working eighty-four, and being paid for 106. Much better tests of the effect of shortening hours on the unemployed in the engineering trade are afforded by the experience of the various engineering firms who have recently replaced the nine by the eight hours' system. The surprising thing about these experiments is that the same staff of men have done more work in the forty-eight hours a week than they did before in the fifty-four hours, together with the overtime then habitual, and consequently neither Messrs. Johnson nor Messrs. Allan nor Messrs. Short required a single extra hand. The ironfounders had their hours shortened to nine in 1873, but while only 1·4 per cent. of the members of the Ironfounders' Union were out of work in 1872, 3·2 per cent. were out of work in 1873, 3·9 in 1874, and the proportion went on rising with the trade depression which shorter hours have no power to

check, till it was 22·3 per cent. in 1879. The Scotch ironmoulders had their hours reduced from sixty to fifty-one in 1872. But while their expenditure on unemployed benefits was only 5s. 1d. per head in 1871, it rose to 10s. 4½d. in 1872, and 14s. 1d. per head in 1873, and so on till it was £3 8s. 11½d. per head in 1879. The Northumberland miners' hours were reduced to eight in 1871, and again to seven in 1873, and their unemployed benefit expenditure, which was nothing in 1870, was 2½d. per head in 1871, again nothing in 1872, 1s. 6½d. in 1873, 4½d. in 1874, 1s. 5½d. in 1875, 6s. 3½d. in 1876, so that the reduction of hours was followed in both cases by a fall in the numbers of unemployed<sup>1</sup> in the first year after, and a rise again in the next.

In the great majority of cases where the eight hours day has been practically tried, the same work has been done without calling in a single new hand.

I have mentioned the seventy-four successful strikes for shorter hours in the building iron and tobacco trades of New York in 1885, which were estimated beforehand by the employers to necessitate the employment of 1,003 new hands, but did not in the event necessitate the engagement of a single new hand, because the old staff did the same work in the shorter time. Herr Freese required no extra help whatever in any department of his window blind factory, though he had more work done than before; Messrs. Caslon required none in

<sup>1</sup> *Report on Trade Unions, 1887.*

their typefoundry, and had the same work done; Mr. Beaufoy got more work done than he ever did before, and needed no extra assistance, except that of three or four watchmen and gatekeepers, watching and gate-keeping belonging obviously to that smaller class of occupations in which the work done is of such a nature that it cannot be compressed into shorter time.

When three eight-hour shifts are introduced in place of two twelve hour ones, the change involves more than a mere shortening of hours, and the provision of a new shift, which, if the shift was to be equal in strength to the old ones, would mean an addition of 50 per cent. to the number of hands employed, is likely in any case to be accompanied by some increase of hands, to provide for an increase of production from the work as a whole. When we learn for example that Messrs. Brunner, Mond and Co. on introducing the eight hour shifts engaged something like  $12\frac{1}{2}$  per cent. more hands, we cannot infer from that circumstance alone that these extra hands were required for merely keeping up the former stated production, for they may have been required for getting out an increased production. We are not told which, but the latter seems the more probable from the fact that the old hands have got their old rates of wages back again, so that their old rate of individual production must have been fairly well maintained, without needing any external aid. At some of the gas works the introduction of the eight hour shifts was effected without causing any absorption of the unemployed. At Sheffield,

where the old staff did the same work as before, no extra assistance was needed, and at the Commercial Gas Company's works at Poplar, where the men did only one-twelfth less at first, and have begun to do better now, the change did not cause any more men to be employed.<sup>1</sup> In some of the other London gasworks more men had to be employed, but then it must not be forgotten that the gas labourers were, for reasons of their own, not doing their best at the time, and that their deficiencies cannot be laid at the door of the eight hours system or made the basis for a conclusive general inference as to the effects of an eight-hours day on the employment of labour. In the West Cumberland blast furnaces 27 or 28 men were required under the eight-hours system to do the work 24 men did under the twelve hours one, but, as I have said before, this experiment was only half finished when the furnaces were stopped and the physical health of the men was then undergoing such improvement as could not fail to tell further on the result of their labours before long. As it is, those who share the views of Mr. Gunton, ought to observe that while the men's hours were reduced one third, their numbers were only increased one sixth or one eighth, and that with all the incidental exigencies of a new shift. On the other hand, when the three eight-hour shifts were introduced into Mr. Ryland's glass-bottle making works, the men individually, after a little time, did as much and many of them did more, in the shortened day than

<sup>1</sup> *Labour Commission*, C. Qu. 2524-42.



they did before, so that no new hands required to be engaged at all. On the whole, the experience of the three eight-hour shifts gives no countenance to the expectation that any great amount of work will be created for the unemployed by that arrangement.

Then, again, the hours of labour are sometimes shortened in times of improving trade, when the work-people happen to be strong enough to obtain what they want; and though an increase of employment may follow, that increase is generally due really to the improvement of trade and is apt to be erroneously set down to the shortening of the hours. The case of the Thames barge-builders seems to be an example of that. Before 1890 they wrought  $56\frac{1}{2}$  to  $58\frac{1}{2}$  hours a week and 10 or 12 hours a week besides of systematic overtime in summer, while a fourth of them would be out of work altogether in winter. But in 1890, their union—which contains 425 of the whole 500 barge-builders on the Thames—succeeded in abolishing systematic overtime and reducing the hours in union shops to  $54\frac{1}{2}$  a week, and that, says Mr. W. C. Steadman, the Secretary of the Barge-builders' Society, "was equal to putting thirty more men into employment, so that whereas at one time our out of employment benefit was 15 per cent., last year (1891) it was only 5 per cent., and this year it has only been 3 per cent."<sup>1</sup> That improved trade had something to do with the result is shown by the fact that the absorption of the unemployed continued the

<sup>1</sup> *Labour Commission*, A. Qu. 20324.

second year. Granting for the moment that the reduction of the numbers of the unemployed in 1891 to 5 per cent. of the trade was the effect of the shortening of work-hours in 1890, the further reduction of their members to 3 per cent. in 1892 must have been due to some other cause, viz., to an increasing demand for barges, and the presence of this cause in 1892 suggests its probable presence also in 1891, unless the contrary can be shown, which is not done or thought of by Mr. Steadman.

Now there are certain trades, such as the watching and gate-keeping already referred to, in which it is impossible to compress the same work into shorter time, and consequently impossible to shorten hours without engaging more hands. But these occupations are not numerous; they include, all told, but a minute fraction of the manual labouring class; and even in them, if we turn to experience, the absorption of new hands is not always by any means proportionate to the number of hours reduced. They are chiefly trades connected with transport work, railways, tramways, and ships. Now we have seen the hours of the Huddersfield tram drivers and conductors reduced from 14 to 8 a day, and the trams worked in consequence by two eight-hour shifts instead of one fourteen hours one.<sup>1</sup> What was the effect of that reduction? Did it, as Mr. Gunton would expect, lead to 100 per cent. more drivers and conductors being required? No, only 50 per cent. more

<sup>1</sup> *Labour Commission Report*, B. Qu. 18788.

were required. Very exaggerated expectations seem to be entertained as to the effects of shortening railway servants' hours. It is sometimes forgotten that a great number of a railway company's employés are engaged in constructive work, and there is no reason why a shortening of hours in a railway company's engineering workshops should occasion any more absorption of the unemployed than shortening of hours in the workshops of Messrs. Allan or Messrs. Short. Sir George Findlay, manager of the London and North-Western Railway, states that the railway companies of the United Kingdom have 350,000 employés, but of these the census of 1891 gives only 222,583 as railway servants proper, *i.e.* persons engaged as guards, drivers, porters, clerks, &c., for the working of the line. The remaining 127,000 are engaged in branches of labour in which it is quite possible to make up for shorter duration by greater intensity. But even when the attention seems confined to the workers of the line curious exaggerations appear. Messrs. Webb and Cox say, for example, that a reduction of the average working hours by 20 per cent. "would involve the engagement throughout the United Kingdom of at least 80,000 extra men as porters, shunters, guards, examiners, signalmen, drivers, and firemen;"<sup>1</sup> and Mr. H. M. Hyndman told the Labour Commission that a compulsory eight-hours day would occasion an absorption of 100,000 unemployed persons on the railways alone. Now, as I have just said,

<sup>1</sup> *Eight Hours Day*, p. 130.

there were, according to last census, only 222,583 persons engaged in the whole railway service of the United Kingdom in 1891, and if we deduct from that figure the 51,752 clerks and officials to whom the reduction of hours is not proposed to be applied, we have only 170,831 railway servants left. It is obvious therefore that a reduction of their hours by 20 per cent. could not possibly necessitate the engagement of any thing like 80,000 extra men, but only at most 34,000, even if the increase of employment was to be strictly proportional to the shortening of hours. But that proportional increase is not likely to occur, because in some branches of railway service the work is susceptible of compression into shorter time. Messrs. Webb and Cox themselves mention that "the shunters of goods trucks in busy railway centres, working twelve-hour shifts, do as a matter of fact dispose of 50 per cent. more trucks in the first six hours than in the second," and add that "it is calculated that in one large station this fact implies that the substitution of three eight-hour shifts for two twelve-hour shifts would enable 200 more trucks to be disposed of daily by the same actual working staff, at an additional cost of wages per truck of only 25 per cent."<sup>1</sup> However this may be, it at any rate opens out possibilities of economising labour, which Messrs. Webb and Cox ought to have allowed for in their calculations of the work to be made for the unemployed by shorter hours in the railway service.

<sup>1</sup> *The Eight Hours Day*, p. 103.

Then, too, it ought to be remembered that there are thousands of signalmen who are only eight hours on duty now, and that there are thousands more of station-masters and porters at rural stations to whom nobody thinks of applying any hard and fast eight-hour rule at all. And after all these deductions are made, there remains the experience of the Huddersfield tramways still further to warn us that even in branches of transport work, in which the amount done seems to be most dependent on causes external to the worker, the number of fresh hands engaged in consequence of a reduction of hours may be very far indeed from being proportional to that reduction.

The natural effect of shortening the hours of work to eight a day moreover is not in the least to diminish production; it is really the exception when that event supervenes, and as for the most part the same staff does about the same work as before, there is nothing to create any change in the situation of the unemployed, even from the fallacious standpoint of those who imagine a general restriction of production to be a sure way of creating employment.

This truth is driven home with peculiar force at the present moment by observing the protracted and perplexing redundancy of labour which has troubled the colony of Victoria ever since the end of 1889. The eight hours day became general in that colony in the years 1884-6. Before that time it was enjoyed by no more than twenty trades, but it is now enjoyed by sixty.

Three-fourths of the working population of the colony work only eight hours a day, yet the unemployed have constituted a worse difficulty in Melbourne since the eight hours day became general than they did before. In July, 1890, Sir Bryan O'Loughlan stated in his place in the Legislative Assembly that there were then 3,000 unemployed men in Melbourne; in May, 1891, the Trades Hall Council said there were 5,000 unemployed, and that the labour market was worse than it had ever been in that city. In 1892 a Government labour bureau was opened in Melbourne, and in June Sir Bryan O'Loughlan stated there were some 4,000 Melbourne workmen enrolled in it as out of employment, and that there were hundreds more who were in an equally unfortunate position, but did not care publicly to enroll their names. Out of the 4,000 persons whose names had been inscribed, work had been found for only 100, and Mr. Moloney, another member of the House, said there were then in Melbourne 2,500 workpeople without food or fire. By December as many as 15,000 names were inscribed, and though it was now summer employment had not been found for half of them. In January the Minister of Railways informed a representative of the press that he was then employing 300 or 400 men more than he required, but that he could not think of dismissing them in such a time of depression. Government is a very extensive employer of labour in Australia, and when the railways are employing this superfluity of hands, we may be sure there is, in all other branches of

Government work, a like superfluity of hands whose retention is really a matter of relief disguised as business.

Many remedies are from time to time suggested for this distressing condition of things. Government, tired of relief works, which usually ended in fostering the evil they were meant to cure, is now trying to cure it by promoting small farming and village settlements, while the manufacturers for their part have been one after another stating that if they would only get an additional protective duty of 40 or 60 or 80 per cent. on the articles they respectively make, they could employ 40 or 60 or 80 per cent. more hands. But nobody thinks of suggesting that any good might be done to the unemployed by reducing the hours of labour. On the contrary, the tramway and omnibus workers, whose hours are at present limited by law to sixty a week, have many of them offered to work thirteen or fourteen hours a day if that would be any use.

It is puzzling to account completely for this persistent depression in the demand for labour, but it is generally attributed to the concurrent operation of the great strike of 1889, the great land boom, and the completion of some extensive public works. Whatever the causes, however, it recalls to us in an impressive way how little even a very general adoption of an eight hours day can do for the unemployed. A shortening of the hours of work does not reach any of the more common causes of redundant labour, so that it is not really in

the nature of the eight hours day to do what is so commonly expected of it in that connection. A great strike or a big land boom has necessarily the same effect under a short-hour system as under a long-hour one. The poor cotton harvest and the monetary crisis which laid half the machinery of Manchester idle in 1847 would have done the same thing though the mills had been running eight hours a day instead of twelve; and the political troubles of France, which in the following year threw multitudes out of employment in York and Derby, and closed altogether the mills of Rouen, received not the faintest check from the fact that in the thick of them the hours of labour were reduced in England to ten and in France to eleven and twelve. The term of English factory labour was reduced on January 1, 1875, from sixty hours a week to fifty-six and a half, and yet, while there were 1,005,685 factory operatives in the kingdom in 1874, there were only 975,546 at the next enumeration in the depressed year 1878. Then of course shortening hours has obviously no power to cure the involuntary idleness incident to occupations dependent on weather or the seasons, or to do any good to that considerable section of the unemployed who are not only unemployed but unemployable.

A general adoption of an eight hours day will, I am persuaded, be an immense benefit to the working class and to the nation generally. The improvement of the man will involve the improvement of the workman. While increasing his enjoyment in life, it will at the



same time enhance his industrial efficiency and lengthen the years of his efficient working life—two invaluable gains for the national resources. But there is one benefit which it is plainly not in the nature or power of an eight hours day to render in any very appreciable degree : it cannot make any serious impression on the number of the unemployed. Yet that is the very benefit which seems to be most ardently and confidently expected from it.

Now this wrong expectation arises for the most part from observing the effect of a general limitation of production in a single trade while all other trades continue to produce as largely as before, and then leaping to the conclusion that the same thing will happen when all other trades shorten their production too. The miners, for example, may play and make something by it so long as all the rest of the world remains at work. They may by a general restriction of their output force their employers to engage more hands to do the work, and even perhaps to pay them a higher rate of wages, because they are employed in producing one of the first necessities of life which all the rest of the world require and will consent to purchase at a higher price, as long as they are able, rather than do without it. But if all the world is to play, how can it pay a higher price for its coal? It is quite true that so long as the world in general maintains its old rate of production, the effort of which Mr. Gunton speaks—the world's effort to maintain its habitual consumption—will lead it to give

a little more for its coal—of course, however, at the expense of some other and less necessary item in its budget—and so long as it is able to give this little more, the miners may reduce their output and swell their numbers. But manifestly the one condition upon which the very possibility of this effect depends is that the aggregate production of the rest of the world is maintained and not restricted, for if they all produce less they must all possess less to buy coal with.

In the same way it is seen how, when a particular trade is busy, when orders have flowed in and overtime has become necessary, a limitation of the hours of work, and a refusal to do overtime, will have the effect of forcing the engagement of unemployed members of the trade. Restricting the work thus tends, it is said, to distribute the work. So it does, and the work is not lessened thereby, because the orders are created by the aggregate production outside the trade, and these orders will continue to flow in so long as that aggregate production remains unrestricted. But if all trades together were to restrict their output in the hope of distributing the work better, they would find they had merely less work to distribute, and instead of making work for the unemployed they would have unmade the work of a considerable portion of those now employed.

The fallacy in this cruder and commoner form, therefore, is merely the naïve mistake of expecting the same result to ensue after we have removed the principal condition on which it depends. But the fallacy is

presented also in a less crude form. Mr. Sidney Webb and Mr. Horace Cox are too good economists to think that there could be any increase of work for the unemployed if the aggregate production of the community were diminished; but they contend, in their interesting work on the eight hours day, that the aggregate production of the community would not be diminished by a general restriction of the production of all individual labourers now at work, and that it might even be increased, inasmuch as the difference might be made up, and even more than made up, by the work of those who are at present unemployed. The unemployed are apparently to obtain employment from capital which only comes into being as the result of their employment; they are to provide a handle to their axe from the tree they hew with it; and if this miracle can be so easily performed under an eight hours system, why should it not be performed quite as easily under a ten hours one, or any other? Underneath this form of the fallacy, as underneath the former, there lies the idea that there exists some force able to keep up the normal consumption of society after its normal production is allowed to fall. But the only thing able to keep up the normal consumption of society, and the only thing to keep up the normal consumption of the individuals, is their means of paying for it—their means of employing labour to supply it, and when those means fail, society like individuals must simply go without and cannot employ more labour. Or

perhaps the idea is entertained that if only the State had the management of things, all this could be done, but that is equally delusive, for the State could not have the means of employing labour if the means were not produced. The State may do some things on credit at present, because it can get the use of the means from private persons who produce and procure them. But if the State is sole proprietor and producer, it has no such other quarter to fall back upon. If it stops producing the old amount there is no banker outside to advance it the means of employing more labour to make good the deficiency.

The eight hours day is not the first good cause that has been promoted by bad arguments, and life itself, perhaps, is only made tolerable by its illusions; but in the case of the eight hours day it makes all the difference in the world to the practical success of the experiment, whether the working class are to enter upon it with the wrong idea that they are to draw their benefit from a general restriction of their production, or with the right idea that they are, on the contrary, to draw their benefit from doing their level best to maintain their production, as they have good hope of doing. Odd though it be, the most popular and trusted argument in favour of the eight hours day constitutes really its only serious practical danger.

## CHAPTER VI

### EIGHT HOURS WORK AND TEN HOURS WAGES

SHORT hours are sometimes pronounced to be a fruit of high wages: the working man, it is said, has merely got rich enough now to prefer an hour's ease to an hour's pay. Professor Jevons seeks to explain the whole short hour movement on this principle as a natural consequence of the modern rise of wages. The successful working man of modern times has shortened his day of labour for the same reason exactly as the successful merchant devotes less time to business after he has made his competency, because it is human nature to become less willing to work hard when there is less necessity for doing so. After adducing in demonstration of this principle of human nature an example of the contrary operation—that is, an example of men growing more willing to work hard in dear years when their necessities grow greater, and their usual wages have become insufficient to supply their habitual requirements, Mr. Jevons proceeds to say:—"Evidence

to the like effect is found in the general tendency to reduce the hours of labour owing to the improved real wages now enjoyed by those employed in mills and factories. Artisans, mill-hands, and others, seem generally to prefer greater ease to greater wealth, thus proving that the painfulness of labour varies so rapidly as easily to overbalance the gains of utility. The same rule seems to hold throughout the mercantile employments. The richer a man becomes the less does he devote himself to business. A successful merchant is generally willing to give a considerable share of his profits to a partner or to a staff of managers and clerks, rather than bear the constant labour of superintendence himself. There is also a general tendency to reduce the hours of labour in mercantile offices, due to increased comfort and opulence."<sup>1</sup>

Now this theory of the origin of the short hour movement, while containing elements of theoretical plausibility, is not in accordance with the historical facts. It is true, no doubt as a general principle of human nature that after a given standard of requirements is secured men will then prefer more ease to more wealth, but this preference did not play in the short hour movement so general a part as Mr. Jevons believed, for the simple reason that the working men's standard of requirements kept constantly rising along with their wages, and never suffered them to become practically so indifferent to money, and so unwilling to

<sup>1</sup> *Theory of Political Economy*, 2nd ed., p. 196.

work hard as his theory requires. As a matter of fact they are usually found working a little harder during the shortened day to prevent that very loss of wages which Mr. Jevons supposed them so ready to bear. In many cases their wages were so low at the time of the reduction of hours that they could not for dear life afford to do anything else. This was notably so in the most important case of all, the compulsory introduction of the ten-hours day into the textile trades in 1848. Wages in these trades stood then at about their lowest extreme. The ordinary artisan in Manchester got more than a pound a week in 1846, but the best paid cotton worker, the self-acting spinner did not make 14s. and power loom-weavers did not make 9s. Vast numbers of them had only 10s. a week before the Ten Hours Act came into force, and only 7s. 6d. after, yet out of 1,153 operatives questioned by Mr. Horner, more than two-thirds of the men and more than half of the women preferred to stick to the ten-hours system. Many of them no doubt expected, as working men always expect, that the shorter hours would eventually raise their wages by forcing on an absorption of the unemployed, and they sometimes expressed to Mr. Horner their disappointment that it had as yet done nothing for the unemployed. But whatever led them to hold fast by their shorter hours, it was plainly not the height of their wages at the moment. Then in strong trades like the building trades, happy in their immunity from foreign competition, and in an ever-

increasing demand flowing from the constant progress of the nation, shorter hours have come without even a temporary or provisional diminution of wages; and on the whole whenever we see a trade submitting to a loss of wages which they believed to be lasting in order to get a shorter working day, we are sure to find the reason to be, not that the wages of the trade are unusually high, but that the hours of the trade are unusually long, or its general conditions unusually exhausting and dangerous.

Whatever may have been the case with individuals, it cannot be accurately said of the short hour movement as a whole that it was characteristically a movement of highly paid labour, ready out of its abundance to buy more of the luxury of ease. The best paid labour in the world, the labour of America and Australia, has often given up shorter hours for higher pay, while trades with comparatively low wages have made substantial sacrifices out of their penury to obtain them. The Cumberland steel-makers, earning their twenty and thirty shillings a day<sup>1</sup>, reject all efforts of their employers or their own union leaders to work in eight-hour shifts instead of twelve-hour shifts, merely because the hours of beginning and leaving work would be inconvenient; while the Cumberland blast furnacemen

<sup>1</sup> Mr. Trow, in his evidence before the Labour Commission, speaks of twenty shillings a day as a very ordinary rate of wages in this trade, and says some operatives make seventy-five per cent, more than that, or £9 and £10 a week,



earning only twenty shillings a week cheerfully parted with a shilling a week out of their slender remuneration, when their hours were reduced from twelve to eight in 1890, and probably found themselves after all the richer in pocket for the sacrifice, inasmuch as 50 per cent. more of them joined the temperance cause after that event, and the friendly societies to which they belonged have had to pay 20 to 25 per cent. less in sick allowance, so that with a quarter less wages lost through sickness and none lost in drink, the shilling reduction might easily prove to be really a two-shilling rise. In such a case ease is money, but what concerns us now to observe is that while both these trades are engaged in fatiguing work, it is the poor-paid trade and not the rich-paid one that is willing to purchase repose. Glass-bottle making again is both a more fatiguing and a better paid occupation than tramway conducting yet the glass bottlemakers with £2 a week cannot be induced by their employers to change from twelve hour to eight-hour shifts, because they believe "they could not then make any wages at all,"<sup>1</sup> whereas the Huddersfield tramway conductors gave up two out of their twenty-three shillings a week, when their hours were reduced from twelve to eight in 1889, and their representatives informed the Labour Commission that they were quite content with the change, and would rather have their 3s. 6d. a day with the short hours of Huddersfield, than 6s. a day with the long hours of London.

<sup>1</sup> *Labour Commission Report*, Qu. 30062-5.

The craving of the working classes for shorter hours has not come from the rise in their remuneration, but from the rise in their intelligence, refinement, and personal dignity; and as these causes require good wages quite as much as adequate leisure, for their better realisation, there seems less disposition abroad than ever among working men to part with any of their pay for the sake of the shorter day. Wages are higher now—real wages very considerably so—than they were fifty years ago, but the idea of making any sacrifice of wages for shorter hours is much more absent from the eight-hours movement to-day than it was from the ten-hours movement then. The trades that want the eight-hours day want it because they have persuaded themselves, rightly or wrongly that it will not reduce their wages but is even a good instrument of raising them. The trades that oppose the eight-hours day oppose it because they think, rightly or wrongly, it will lower their wages; and some great and intelligent trades have first opposed it because they thought it would lower their wages, and now support it because they think it will raise them. Whatever else they may differ about, the one thing on which all alike seem agreed is this, that there must be no substantial surrender of wages for shorter hours. What they want is shorter hours without shorter income, or in the phrase commonly used to explain their aim, eight hours work and ten hours pay. Nor can any fault be found with them for that, for however essential leisure may be for the further improvement of the people, better

remuneration is probably not less essential. Under these circumstances the eight-hours question is above all things a question of wages, and the point which has most weight in determining at once the opinion entertained of the eight-hours day by the working classes, and its real value as a measure of popular amelioration, is the effect which the general reduction of hours to that limit is calculated to exercise on the wages of labour. Will a general reduction of work hours to eight a day lower wages as Professor Marshall asserts,<sup>1</sup> or will it raise wages as Mr. S. Webb and Mr. Cox pronounce to be "almost certain," or will it sometimes do one thing

<sup>1</sup> I observe that Professor Marshall, while explicitly stating in the first edition of his *Principles of Economics*, published in 1890, that "a general reduction of the hours of labour would lower wages" (p. 132), and again that "a general reduction in the hours of labour will lower wages unless a new economy is introduced by working in shifts" (p. xxviii), has silently expunged these statements in the second edition published in the following year; but in spite of these apparent indications of changing ground, his general position remains substantially as it was. That position seems to be that a general reduction of the hours of labour must lower output, and therefore lower wages in all branches of industry except those in which production can be increased by working the machinery for 16 or 24 hours a day instead of 10, or in which the labourers are at present so overworked by long hours that their productive powers are impaired. Even in this last class of industries the first result would be loss, though it would be turned into gain after the increased repose had time to renovate the personal energies of the labourers; but at best such industries would seem to be but few, for Mr. Marshall refers to them as "the extreme cases of overwork which we have been considering." His exposition is not quite free from difficulty, but the sum of it appears to be that for the generality of modern trades shorter hours would mean shorter production, and shorter production, in the generality of trades, would of course mean shorter wages.

and sometimes the other, but on the whole leave the average remuneration very much as it was, and so realise the labourer's hope of eight hours work with ten hours pay?

Now when this question was asked of working class witnesses at the Labour Commission, a common answer was that they expected wages would rise, because for the last sixty years hours had been growing shorter and shorter, and yet wages had kept growing higher and higher. But the high wages have not come from the short hours any more than the short hours have come from the high wages. The rise in wages has come in countries where the hours remain long as well as in countries where the hours are short; it has come in trades that still work 12 hours in the day as well as trades that work only 9. The trade in which wages have risen highest in this country—the steel-workers—has never had a reduction of hours at all. The rise has often been greater in the long-hour country than in the short-hour country, and greater in the long-hour trade than the short-hour trade. We learn from M. Grad that in the cotton manufacture at Mulhouse in Alsace the wages of throstle spinners rose 60 per cent. between 1835 and 1880, the wages of mule spinners 143 per cent., and the wages of piecers 256 per cent.; while the Board of Trade statistics show the rise during the same period at Manchester to have been 100 per cent. for the throstle-spinners, 26 per cent. for the mule spinners, and 96 per cent. for piecers. The

wages of the Bradford mill operatives, whose hours have been reduced 20 per cent. in the last sixty years, and the wages of the Staffordshire coal-miners, whose hours have been reduced 25 or 30 per cent., have risen by a much smaller proportion in the same period than the wages of able seamen, whose hours have never been reduced at all. A rise of wages which is common to all trades and all countries, and is very often most marked in the long-hour countries and the long-hour trades, cannot be due to the introduction of short hours, but to more general causes. These general causes, moreover, are not difficult to discover. They lie before us on the face of things, in the signal development of wealth and productive power which the world has enjoyed during the last sixty years and which has raised the earning capacity of the labouring classes in the only two ways in which their earning capacity can be permanently raised; first by increasing their producing capacity and so making them worth better wages to their employers, and second by enlarging the general demand for labour through the mere increase in the means of employing it and buying its products. But even if the two causes of the rise of wages were not so obvious it would not in any case be legitimate to assume that high wages have been caused by short hours, merely because high wages have come after short hours. So have cheap bread and household suffrage; the mere general sequence of events must not be taken for a relation of cause and effect.

The continuance of the general rise of wages after the spread of shorter hours has no light therefore to throw on the real relation between the shorter hours and the rate of wages. For that we must examine the facts of particular instances of reduction of work hours, and eliminate as far as possible the effects of other contributory causes, and even then we shall probably learn but little, first because we are seldom able to ascertain all the material facts, and second because past reductions of hours have been usually made on too small a field to afford any sure conclusion as to the effect of a general reduction. To illustrate this second difficulty, it is, for example, the common argument with many advocates of the eight-hours day, that it must needs raise wages on account of the absorption of the unemployed which it would necessitate. I have already shown that in the principal cases of reduction there has been no absorption of unemployed at all, but in addition to that, even in cases where such an absorption has occurred, it has never, so far as I know, had the effect of raising wages. The introduction of the eight-hours day on the Huddersfield tramways necessitated the employment of 50 per cent. more hands, but wages were reduced instead of raised. The London gas-stokers got in 1889 a very large reduction of their hours and a very slight increase of their wages at the same time, because the new Gas-workers' Union, which made them strong enough to obtain the one, made them strong enough to obtain the other, but though more men

became then necessary to make the former quantity of gas—Mr. Webb and Mr. Cox say many thousands more—this great increase in the demand for labour effected no corresponding rise in wages whatever. The colliers of Northumberland and Durham obtained a reduction of hours and a rise of wages in 1872, at a time of great prosperity, when the price of coals was very high; but though between the shortening of hours, the introduction of the Mining Regulation Act, and the intentional restriction of production and increase of absenteeism on the part of the miners, more than 15,000 additional hands were engaged in these counties in 1873, wages began to fall again with the fall of prices in 1874, and were in 1877 already lower than they were in 1872. Now in explanation of this failure of the absorption of the unemployed to work the required effect of raising the rate of wages, it will no doubt be contended that in those instances the operation took place on too small a scale, and that though an increased demand for workers in a single trade at a time may occasion no rise of wages, an increased demand for workpeople in all trades at once cannot help doing so. But this assumption—which I shall presently show to be entirely mistaken—must evidently be tested not by the facts of particular cases, but by an accurate understanding of the general principles and conditions which regulate the rate of wages.

The surest inference as to wages that we can draw from the actual facts is that wherever production has not

been diminished by the shorter hours, wages have not been diminished, and that when wages have been reduced in the expectation that production would be reduced, they have afterwards been raised again on discovering that production was fully maintained. That, for example, was the experience under the Ten Hours Act. In the cotton industry wages were extremely low in 1847, in consequence of the depression of trade, but better times began to dawn soon after the introduction of the ten-hours day in 1848, and already in 1849 the wages of cotton operatives in Manchester were higher than they had been in 1846 before the depression, and before the shortening of the day. The "Tables of the Revenue," &c., for 1850, give the rate of wages as follows:—

Occupations.	1846.	1849.
	per week. s. d.	per week. s. d.
Card-room, males . . . . .	11 4	12 0
„ females . . . . .	6 6	8 6
Spinners and piecers . . . . .	10 10	12 0
Power-loom weavers, male and female . . . . .	8 10	9 5
Power-loom helpers . . . . .	4 3	4 8

Now this result was not caused by the absorption of the unemployed and the demand for additional hands, for, as I have shown in a previous chapter, the unemployed in the cotton manufacture were not absorbed in 1849 and were probably quite as numerous, if not more so, than they were in 1846. Improved



machinery had been in some cases introduced but not to any such extent as to affect the result. Prosperity, as I have said, was returning, but it was not in 1849 apparently better than in 1846, though much better than in 1847. The result is due solely to the circumstance, which we know from the factory inspectors and other witnesses, that the operatives came to turn out as much work in the day after the Ten Hours Act as they had done before it and naturally came to earn as high wages. What happened was exactly what happened in Mr. Allan's works, and Mr. Brunner's and many others; wages were lowered for a time in anticipation of a lowered production and raised again immediately this anticipation was found to be false.

This, again, is precisely what we should be taught to expect to happen by a consideration of the general causes that govern the rate of wages. Temporary or auxiliary causes may occasion fluctuations one way or other in the movement of wages, but the one great cause by which its general level is ruled is the productiveness of labour itself. The average rate of wages in a community corresponds with the average producing capacity of its labour. It is higher in England than in France, because the labour of England is more productive than the labour of France, and it is higher in 1893 than it was in 1833, because the labour of 1893 is more productive than the labour of 1833. The general rate of wages is determined by the productiveness of labour, the amount of its production, but this idea of productiveness of

labour needs a little analysis. A contemporary French statesman and economist says that the value of man is always in proportion to the power of his implements, but he ought to have added, together with his power of using his implements. Producing capacity is the combination of personal with mechanical efficiency; and with regard to mechanical efficiency, M. Guyot ought to have further explained that though the wages in individual trades do not always strictly follow the line of the productiveness of the instruments of the respective trades, the average wages in the community always follows the average productiveness of the instruments in use in the community at the time. A cotton-spinner, for example, by means of more powerful machinery, produces perhaps five times as much thread in the day now as he did sixty years ago, while a bricklayer probably lays no more bricks in the day than he did then, but the bricklayer's wages have risen quite as much in the time as the cotton-spinner's. He has shared in the results of the productiveness of the other's instruments, because the increased production in the trade in which machinery has been adopted has necessarily created an increased demand for the labour of other trades generally. This essential connection between high production and high wages, and between low production and low wages, is the fact that must chiefly be kept in view in settling the question as to the effect which shortening the hours of all labour in a community would exert upon the average rate of wages in that community. If shorter hours caused

shorter production in the great body of the workshops of the country, shorter hours would obviously reduce the rate of wages, because, in the first place, the employers could not afford to pay the same wages for less work, and because, in the second, the demand for labour would necessarily fall greatly off when everybody produced less wealth, and had less means of buying goods and employing labour.

But the present state of the evidence, as I have shown in a previous chapter, does not justify the anticipation that production will naturally fall off after the general dawn of the eight hours day, and affords no support to those who are still disposed to deride the labourer's expectation of eight hours work and ten hours wages as a wild dream. When Macaulay stood for Leeds in 1833 against Sadler, the Factory Reformer, he told the electors that the Ten Hours Bill was a quack medicine, and that to tell a man he should have ten hours work and twelve hours wages was the same thing as telling him that by swallowing a certain pill he could get rid of all diseases, even if they were of thirty years continuance, but Macaulay lived to see hundreds of thousands of his industrious countrymen doing this impossible thing—earning twelve hours pay for ten hours work every day of their lives. He had not in 1833 learnt the simple but great lesson he taught so powerfully in his speech on the Ten Hours Bill in 1846. He had not understood the magic of leisure, or perceived how the great living machine is not really idle when its work is suspended, but is all

the while accumulating power, generating and storing up industrial energy, which makes it possible to earn twelve hours pay for ten hours work, because it makes it possible to do the work of the twelve hours in the ten. There is nothing of the quack prescription in promising men they should earn twelve hours pay for ten hours work; the quack prescription would be to tell them they would get twelve hours pay for ten hours work without doing the work of the twelve hours in the ten.

Now the prescription in this objectionable form—in at least its counterpart of eight hours work and ten hours pay—is unfortunately a favourite prescription among influential leaders of the present eight-hours movement, whom I should be very sorry to accuse of anything like quackery, because they act in the most honest faith and are guilty of nothing worse than misconceiving one of the more complicated operations of social physiology. Some of them admit frankly that experience, as far as it has hitherto gone, makes it probable that a general recourse to the eight-hours system would not diminish the amount of the production of individual workpeople in the day, and yet, strangely enough, bid the working class build their hopes on the admittedly improbable alternative that the amount of individual production will fall. The improbable alternative is held out as being much the more advantageous alternative for them, because if they keep up their production their wages will only remain at their old rate; but if they diminish their production, their wages, it is

said, will rise. The reason given for this prophecy is the common fallacy to which I have already more than once alluded, that diminishing the present standard of production all round would create an increased demand for labour and necessitate the employment of the unemployed to bring the standard of production up again to present requirements, and, it is sometimes added, when those unemployed persons begin to earn wages, then their own requirements will also come in to swell the general demand for the products of labour. There are thus said to be two reasons why a general rise of wages must follow a general diminution of production : (1) The unemployed will be absorbed and their competition removed out of the way ; (2) their new spending power will create an addition to the requirements of the community and to its demand for labour.

This is expecting figs from thistles. The only way to increase the demand for labour all round is to increase the production of labour all round, and a general or serious diminution of production always causes a general or serious decrease in the demand for labour. A short harvest or a short fishing always throws many people out of employ, because it restricts the resources from which they receive employment ; and if the short harvest and short fishing came from the intentional limitation of the producers instead of the temporary niggardliness of Nature, the result on labour and wages would be exactly the same. Present requirements are always measured by present production, present means,

and if the community's present production is shortened by any cause, then the community must simply go without some of its present requirements. The worthy persons who are taken in with this fallacy forget the fact, which is the key to a right understanding of this subject, that the general demand for commodities cannot outrun the general production of commodities, because they are really only the same thing in different aspects. Each trade is the customer of the rest, and the extent of its custom is fixed by the amount it has produced, so that if all trades were to diminish the amount they produced, they would diminish in exactly the same degree the amount of their demand for one another's labour. They would no doubt be multiplying their unsatisfied needs, but they would to the same extent and by the same measure be curtailing their means of satisfying them. Now, unsatisfied needs employ no labour; what employs labour is always and only the means of satisfying needs; but here we have thousands of intelligent people thinking they shall do a fine thing for the unemployed by a scheme which increases the unsatisfied needs of society, but diminishes the means of society to satisfy them. The unemployed himself is all unsatisfied need together, but when he gazes in at a baker's window the whole stress of his present requirements avails simply nothing as a demand for that baker's work. How are the unemployed to be absorbed by reducing all society to a certain extent towards the same condition as themselves, with a standard

of requirements as high as ever, but say a fifth less means of satisfying its requirements? With a fifth less means the world must be content with a fifth less requirements; exactly as the unemployed labourer, without a penny in his pocket, must be content to do without the baker's bread till he gets the penny. What boots it that by your combination to diminish production all round you have made it necessary for the world to engage more labourers in order to keep up the same scale of consumption as it has at present, if with the same stroke of policy you cut down in exactly the same proportion the world's power of engaging labourers and purchasing their commodities. It is impossible to increase the world's demand for labour by decreasing the world's means of employing labour or by any other general expedient than by increasing the means of employing labour. Restricting production may sometimes be useful for a merchant in a single branch of industry in special circumstances, but its general adoption by the working class as a supposed means of enlarging the demand for their labour would be fatal policy. Instead of making more work for the unemployed in proportion to the restriction they would have really in that proportion made less work for the employed, so that the natural effect of restricting production would be to lower wages, not to raise them.

The prosperity of the working class, like the prosperity of the world itself, lies in the abundance and not the scarcity of the things it produces; but some of its

worthiest and most prominent leaders entertain strange fears, as if the working class were always going to be ruined by abundance and must needs always be saved by periodical restrictions. Mr. Tom Mann's great dread, for example, is of the constant growth of the nation in productive capacity—the very thing which really keeps the wages high ; and he considers short hour legislation a periodical necessity as a curb upon this ever-increasing general productive capacity. An eight-hours Act might in his opinion be enough for the present, it might impose a sufficient restraint on production to absorb all the present unemployed ; but our productive capacity would soon grow up again and give more trouble, and then he would propose resorting to a six hours day, or a four hours day, or whatever reduction sufficed to meet the necessities of the unemployed. “ If our productive capacity were to improve so that after regulating the working hours to a maximum of forty-eight there was still a surplus population, I should again absorb them by further reductions.”<sup>1</sup> . . . “ I think that as machinery develops and the methods of production prove more effective we must from time to time meet what would otherwise be a surplus population by continual regulations of working hours. That is, I look forward to a time when not only will an eight hours day, or forty-eight hours week, become common, but that after another period we shall go to a lower limit than that.” This proposal rests on a misunderstanding of the nature

<sup>1</sup> *Labour Commission Report*, sitting as a whole, Qu. 2656.



of an overstocked market and a misunderstanding of the general effects of improved machinery. It may be quite possible that our modern powers of rapid production tend to overstock a market faster than was wont to be the case, but that matters little to the question. A market is never overstocked all round, it is overstocked with some things only, and it is overstocked with these very often because it happens to be understocked with other things which furnish the means of purchasing the former. The way to correct this state of things is either to increase the supply of the latter or to restrict the supply of the former, but to restrict the supply all round would only make bad worse. It would aggravate the overproduction in the trades originally affected and extend the disease into hitherto unaffected quarters.

Mr. Mann not only prescribes the wrong remedy, but he traces the disease to the wrong cause. Machinery and improved processes of production have always created far more employment for labourers than they took away. They have increased the general wealth of the community and consequently its means of employing labour, and even in the particular trades in which they have been introduced, though their first effect may have been to throw many out of employ, they have usually, before long, increased the demand for labour through the extended markets commanded by the commodities they served to cheapen. The Bessemer process has reduced the number of hands

needed for making steel (without, however, reducing their wages), but the cheap steel resulting from it has vastly increased the demand for labour in many other great branches of industry. The railway may have told hard on the carriers and stage coachmen, but it has obviously not only increased immensely the number of persons employed in the work of transportation, but quickened the general demand for labour in all parts of the world. In fact, the growth of productive capacity, of which Mr. Mann and many others conceive such a misplaced fear, is the great feeder of the general demand for labour. The general demand for commodities has its measure in the general production of commodities, it grows when production grows, it contracts when production contracts, and the failure to grasp this essential connection between demand and production—the identity of the two indeed—lies at the bottom of Mr. Mann's errors on the subject, as was frequently manifested in the course of the interesting Socratic examination he underwent before the Labour Commission at the skilful hands of Mr. Gerald Balfour, M.P.

Mr. Mann is first asked by Mr. Balfour what would be the effect of a shortening of hours on wages, if the shortening caused no reduction of the average output of the individual workers, and therefore no reduction in the aggregate produce of the country; and he answers rightly enough that there would in that case be no rise in wages, because there would be no occasion for absorbing any of the unemployed. Mr. Mann is next

asked what would be the effect on wages, if the average output of the workers and consequently the aggregate produce of the country were diminished by the shortening of hours; and he answers that in that case wages would rise because, if the aggregate produce were diminished there must be an absorption of the unemployed to bring the aggregate produce up again to present requirements, that is to the present aggregate demand. And not only so, but as soon as the unemployed began to earn wages, this aggregate demand of the community, would, he thought, be increased, because it would then include the demands of the former unemployed. Now nothing brings out better the confusion of ideas prevailing on the subject than this self-contradictory answer. Mr. Mann knows quite well that the effective demand of the unemployed is strictly limited to the money they have in their pockets; before they begin to earn wages it is nothing, and it is only after they begin to earn wages that it enters into calculation. But what he sees to be impossible for the unemployed is exactly what he thinks quite possible for all society; the demand of the unemployed is limited by the possessions of the unemployed, rising when these rise, falling when they fall; but society is supposed to keep up the same effective aggregate demand after its aggregate possessions have been seriously diminished. The unemployed had probably as many requirements before they got work as after, but their requirements constituted no demand for the

products of labour until they obtained the wherewithal to satisfy them. And the case is the same with society. Society cannot increase its demand by diminishing its wherewithal to satisfy it; the wherewithal is the demand. If society has not work for all the unemployed now, how is it to give them work, when it has a fifth or less to spend?

In answer to this Mr. Mann first takes a turn round another vicious circle, and then springs right out to other ground than shorter hours altogether. He first says, that while true enough, society cannot employ more labour without having more purchasing power, society will, under a shorter day, have the produce of the labour of the unemployed, and that this produce will supply the increased purchasing power society needs for employing more labour. In a word, he says "the labour of the unemployed will create a demand for itself and pay for itself. That is so, undoubtedly." That is to say, society cannot employ the unemployed until it gets funds to do so, and it is to get the funds by employing them. It must rival the Irish saint who swam the Channel with his head in his teeth. But when asked why this miracle cannot be performed now, and why, if the labour of the unemployed is to create a demand for itself under an eight-hours system, it fails to do so under a nine hours one, Mr. Mann leaves the short-hour ground altogether, and says "because of the sectional control of industry." The absorption of the unemployed is not to come from the substitution of short hours for long,

but from the substitution of national or central for sectional control of industry. The force which will compel the absorption of the unemployed is not the necessity for maintaining present requirements of society after a diminution of present work-hours, but is the ordinary force of the Queen's Government. So that after whirling about in various circles of vicious reasoning in which he has got entangled, Mr. Mann ends in what is equivalent to an admission that the diminution of production he expects to result from shorter hours has no power to create a demand for the labour of the unemployed, and no power consequently to raise the wages of labour.

Mr. Mann is next asked what would be the effect of shorter hours on wages, if they caused not a diminution but an increase of the average output of individuals, and of the aggregate produce of the country, and he answers that, while he considers this alternative impossible to happen, yet if it did happen then it would raise wages wherever trade organisations were strong enough to assert the claims of labour, and that it would increase the general purchasing power of society, and consequently the general demand for labour, and tend so far to the absorption of the unemployed. Mr. Mann is thus landed in a conclusion exactly the opposite of what he had maintained a little before; and when asked, "Now, does it not seem to you rather a curious conclusion that an increased aggregate production and increased efficiency will raise wages, and will create a demand for

employment, and that the same result will also follow, according to your view from the opposite cause, namely, diminished aggregate production?" his reply is: "It does not commend itself to me as so very contradictory. It is possible to work it out as I suggest. It does work out in both ways." Now this is precisely what it does not do. It does *work* in both ways, but it does not *work out* in both ways. It works in a single industry, while the conditions of all other industries remain unchanged; a rise of wages may possibly under these circumstances follow a diminution of average output as well as follow an increase of average output. But it does not work out in all industries together; a diminution of the average output in all industries together would necessarily lower wages, because a general diminution of produce is a general diminution of the effective demand for commodities and labour, whereas a general increase of the average output of all industries would, for the same reason, raise wages, because an increased produce is an increase of such effective demand.

✓ To sum up, then, the effect of shorter hours on the general wages of labour depends entirely on their effect on production. If they lessen production generally, they will lower wages generally, but they have not, in fact, lowered production generally in the past, and they have consequently not lowered wages. The men have unconsciously or from design worked better in the shorter hours, and the masters have been led to make more effective arrangements, and introduce improved methods

of production, and there is no reason to think they will be unable—there is, on the contrary, every reason to think they will be able—to conspire together to produce the same result again, and realize the ideal of eight hours work and ten hours wages.

## CHAPTER VII

### THE ENGLISH EIGHT-HOURS MOVEMENT OF 1833

THE first systematic movement for a general eight-hours day of labour in England was started as far back as sixty years since, and strange to say, it was an employers' movement, and stranger still, an employers' movement for eight hours work and twelve hours pay, or in the words of its authors' manifesto, for "an eight-hours day with present full day's wages." Of this movement nothing seems to be generally known; not even books specially devoted to the short hours question contain, so far as I have observed, as much as a single allusion to it; and as the movement is not without some lessons of interest it may be worth while calling it up for a moment again from the thick oblivion in which it is buried.

The movement originated with a remarkable patriot of those days, John Fielden, a large cotton manufacturer at Todmorden, and M.P. for the borough of Oldham. Fielden—"Honest John," as he was fami-



liarily called by the working classes whose cause he so long and generously served—had been an apostle of short hours ever since he had himself trudged after the spindles as a young apprentice in his father's mill, and he became a most active champion of the ten hours cause in the House of Commons, where eventually he had the honour, during Lord Ashley's temporary exclusion from Parliament, of actually introducing the Bill when it was finally carried in 1847. In 1833 trade had been bad for some years, so that wages had sunk extremely low, and profits had probably gone. It was in that year that without any concert with one another a committee of Yorkshire mill-owners making an inquiry into the earnings of the operatives of the Huddersfield district, and the Liverpool branch of the Anti-Corn-Law League making a similar inquiry of 6,000 families in Liverpool, arrived at the same conclusion and expressed it in the same phrase, that the majority of the industrious poor were then living on twopence-halfpenny a day. It was of course twopence-halfpenny a day per head—that would be tenpence a day per family, or 5s. a week, but the phrase "twopence-halfpenny a day" got into vogue, and it was in Fielden's mouth again and again about this time. For he found the fact confirmed only too completely by his own observation wherever he turned. The handloom weaver, he said, was getting only four or five shillings a week, and the silk operatives, who a few years before earned their sixteen shillings and more a week, were re-

duced to barely six. He brooded much on this miserable condition of things, and at length conceived a scheme which was to bring good times back again for all by one great masterstroke of combination. If the employers and employed in each trade could but be got to agree together to work only eight hours a day instead of working twelve, they would diminish their production of commodities so much that the prices of those commodities would necessarily rise very high, 25 per cent. at least, and with these higher prices the employers would begin to set eyes on profits again, and still be well able to pay their workpeople the present twelve hours wages. In some trades there might be no necessity for any change, inasmuch as they did not work more than eight hours a day on an average as things stood. "In agricultural labour," he said, "in the dockyards and the public works, and, I believe, in many other branches of manual labour, the average time of work the year round does not exceed forty-eight hours per week, and therefore no alteration of the time of labour for those so employed is suggested." It was chiefly in the manufacturing establishments that a shortening of hours was required, the very establishments that were most depressed; and he said that if the employers and employed in these establishments laid their heads together and if the reduction of hours became consequently general in the country, nobody would be the loser, because they would be recouped out of the rise of prices. The change would be introduced

trade by trade, and he thought a good opportunity of introducing it into the textile trades would be when Hobhouse's Act came into operation on the 1st of March, 1834, and the mill hours for children were being reduced, at any rate, to eight by that measure.

This scheme is obviously only another form of the old delusion which seems so perennially catching, that the world will somehow increase its wealth all round at the year's end if it will only agree to produce a quarter less wealth every day, as if men were made rich not by producing wealth, but by ceasing to produce it. First one trade is to shorten its hours and restrict its production, and force the other trades to pay for its shorter hours by the increased price they must pay for the commodities it produces; then the other trades, each in turn, is to do the same, and when the circle is complete and all have alike had their hours shortened and their prices raised, the practical upshot of the whole transaction is found merely to be that each trade instead of paying the cost of its own shorter hours, has paid the cost of the shorter hours of the other trades, by the rise in prices. First one trade preys on all the rest, forcing from them the same remuneration for less work, and then the rest, each in turn, perform the same operation and the sum of their mutually predatory policy is that all alike have done less work and consequently all alike have less means in their pocket. A predatory policy like this can only be successful if it is not general to all trades, but

practised by only one or two strongly placed trades while the mass of the ordinary occupations remain victims. The moment all take to the trick and begin to practise it on one another, it becomes mere foolishness. People cannot all live by borrowing from their neighbours instead of producing, nor can they all live better by borrowing more and producing less.

Yet such was the idea of Fielden, and it so happened that when his mind was full of it, in the autumn of 1833, he received a visit from Robert Owen, then on one of his lecturing tours in the North of England. Fielden, though no Socialist, was a great believer in Owen personally, and immediately took the great social reformer into his counsels. They discussed the scheme for three whole days together, and Owen was completely carried away by it. He said it was the best he ever heard suggested, that it was perfectly practicable, and that he would at once set on foot a movement for its realisation. Owen, it may be remembered, had already in 1817 laid down eight hours a day as the proper period of work in the new system of village communities he proposed to establish, but this was the first time he proposed the same rule for the ordinary unreformed world.

The two friends went to work forthwith. Fielden turned first, as was right, to his own partners, who entered into his plans without a scruple, and agreed to introduce the eight-hours system into their mills on March 1. Strengthened with this promise he next

proceeded to Manchester and obtained the same promise from a number of manufacturers in that city. The idea was zealously taken up by Condy, the editor of the *Manchester Advertiser*, a Radical organ of the day, and by the famous William Cobbett of the *Political Register*, who was Fielden's own colleague in the representation of Oldham, and before a month had passed a great meeting was held in Manchester on the 25th of November, at which a strong organisation was founded under the name of the National Regeneration Society for the purpose "of assisting the working classes to obtain for eight hours work the present full day's wages." Owen had meanwhile been also busy at work, and made speeches and established local branches of the Regeneration Society in the great industrial centres of the North. At Sheffield the cause was joined by Ebenezer Elliot, the Corn-law Rhymer, and at Bradford by Parson Bull, the Rector of Brierley, who fought a good fight for the short-hour cause when parsons and priests passed it by on the other side. Meetings were held and branches rapidly established in Oldham, Rochdale, Heywood, Bury, Bolton, Blackburn, Burnley, Preston, Chorley, Macclesfield, Nottingham, Worcester, Wigan, Leicester, Congleton, Stalybridge, Warrington, and among other places even London. All this was done before November was yet out, and in December the *Manchester Advertiser* was able to announce that the rule of eight hours work with present full day's wages was actually adopted in the mills of Mr. John

Wood, the largest manufacturer in Bradford, whose zeal was apparently too ardent to wait for the general start on the 1st of March. This was not unlike Wood, whose conscience was ever chiding him about the hours of labour, who had already shortened them to 11 in his own factory while his neighbours were running 12, and who was always one of the great pillars—the chief financial pillar—of the ten hours cause. One night in 1830 he underwent a sudden but profound conversion—almost religious in its character—on the subject of factory labour. Richard Oastler, afterwards so well-known as “the Factory King,” but at this date only a slave emancipation agitator, was staying with him, and they had much talk together over the miseries of the poor slaves in the plantations. Oastler having to leave very early next morning they bade one another good-bye on retiring for the night, but in the morning, Oastler, before leaving, was summoned to the bedside of his host and found him lying with a pamphlet on the wrongs of factory life open before him, which had, he said, deprived him entirely of sleep, because in every word he read he read his own condemnation. And he there and then besought Oastler and refused to let him go until he got from him the pledge, to rise and do for the factory operative at home what he was already doing for the plantation slave across the Atlantic. Oastler gave his word, and that was the first consecration of the “Factory King” to the main work of his life. Now a manufacturer struck

with such a deep remorse for long hours was very likely to run zealously into this proposed experiment in short hours, but it does not appear how the experiment ended in these particular mills, if it was really begun as the newspaper announcement indicates.

To carry on the agitation Owen prepared a catechism early in November in which Question 14 asked why should you fix on eight hours a day as the maximum time for work, and the answer is :

"(1) Because it is the longest period that the human race—taking the average of strength and allowing to the weaker the rights of existence as well as the stronger—can endure of physical exertion so as to be healthy, intelligent, virtuous, and happy.

"(2) Because of the modern discoveries in chemistry and mechanics, which render it unnecessary to require a longer period of physical exertion.

"(3) Because by eight hours labour under proper arrangements, a superfluity of wealth may be created for all.

"(4) Because no man has a right to require his fellow-men to be employed longer than is generally beneficial to society merely that he may grow rich by making many poor.

"(5) Because it is the real interest of every human being that every other human being should be healthy, intelligent, contented, and wealthy."

No mention is made of a sixth reason which had more practical weight in the agitation than any of the

other five, viz., because it was believed that making eight hours the maximum of labour was a sure means of making the present wages the minimum of remuneration. Owen had advocated the eight hours day as early as August, 1817, but he says it was John Fielden who suggested the additional point of present full wages as a minimum remuneration. If Owen omitted it in his catechism he did not neglect it in his platform speeches, for his actual contention in them always was that there was no way of making the non-producers pay a fair equivalent for the labour of the producers, except limiting the production, and that there was no way of limiting production so good as working eight hours instead of twelve. The oddest of all ways of making the non-producers pay a fair equivalent for the labour of the producers is to shorten by a fourth their means of paying for labour at all. If the eight hours day was to have the effect on production which Owen erroneously expected it would have, then this great contraction in the means of

- employing labour must have reduced even the meagre remuneration the labourers then enjoyed and thrown many of them besides out of work and remuneration altogether.

As the 1st of March approached—the day on which national regeneration was to begin—the agitation quickened; and in February the National Regeneration Society petitioned the House of Commons on the subject of the eight hours day, and started a new weekly journal, the *Herald of the Rights of Industry*, to



promote the cause. On the 21st of February it was announced that the employés of more than fifty mills in Manchester had made the application to their employers for an eight hours day from the 1st of March, and though the answers were not yet in all cases known, they were much more favourable than had been expected. Twenty-six mills had made the application in Todmorden, and in all cases but two the masters had replied that they would have no objection to make the change if other masters made it. At Oldham many applications had been sent in, but no further answer had yet been made, while at Heywood applications were signed by 6,000 operatives, though not yet sent in, but one of the largest employers had signified his willingness to try the proposed regulations experimentally for a period of two years. Similar reports came from other towns in Lancashire, but Yorkshire was still hanging back; Scotland, though in motion, would not prepare for action on the day appointed, and Ireland had not begun to move at all. It was agreed, therefore, in order to secure a simultaneous start to put off the day of inauguration from the 1st of March till the 2nd of June. But before the 2nd of June the whole movement was withered and gone, the last number of the *Herald of the Rights of Industry* appearing on the 10th of May.

The movement was nipped thus in the bud—and in a bud that seemed to promise much—by the chilly reception it met with from the general body of the

working class. At a meeting in Bradford on the 10th of March, Oastler made a speech in which he said he believed the plan of the Regeneration Society would never succeed for no other reason than that the working classes were not united about it, and Parson Bull, who was in the chair, wrote a few days before declining to attend the meeting because the working men were, he said, a mere rope of sand and would not help themselves or give up "the price of one glass of ale to save their own class from distress and ruin." These personal attacks on the working class for their indifference to the new scheme, for their disunion, and for their indisposition to make sacrifices for their own cause, have some light thrown on them by an article in the *Herald* on the 29th of March, which explains that the great reason which made the working class so indifferent to the scheme, was that they could not see how they would be any better off when everything rose 25 per cent. in price except their labour. If they were only to receive their present full day's wage and had to pay 25 per cent. more for their bread and their boots and their beer, it seemed only too plain to their plain minds that they would be 25 per cent worse off than they were before. The *Herald* tries to answer the objection by stating that wages would rise the 25 per cent. as well as prices, in consequence of the necessity for engaging the unemployed, so that it promises they shall have eight hours work and sixteen hours pay. But this was a change of front from the programme of Fielden

and Owen, and being accompanied by no tangible proof of its probability, it failed to lessen—probably it rather increased—the doubt and distrust with which the working classes regarded the scheme. “Nay,” we can hear them reply, “if the prices of everything must rise 25 per cent. before it is possible under the new order to pay us our present full day’s wage, poor though this wage be, must not the price of everything rise other 25 per cent. before it is possible to pay us this increase of 25 per cent. in our wages? And what better should we be then? We are far from sure that shortening our workhours by 33 per cent. can produce the required effect of raising our wages 50 per cent.—that in itself is hard to believe, but in any event it is only too plain to us, that if our wages can only be raised 25 per cent. by first rising the prices of everything we buy 50 per cent. we are certain to be worse off under the new arrangement than we are even at present. We are not insensible to the luxury of longer leisure but with wages at zero, or even some degrees below it, we cannot afford to buy that luxury by cramping still further our measure of the ordinary necessities of life.”

This was the attitude for which the Rev. Mr. Bull thought fit to cast on them the reproach that they were so wanting in self-denial that they would not “sacrifice a thimbleful of intoxicating liquor if it was to save the West Riding.” But it was the simple attitude of common sense. Mr. Bull and the other promoters of the scheme,

no doubt honestly believed in the glowing promises of their prospectus, and thought that when the round was complete it would really end in the regeneration of the working class, though it might in the meantime call for some temporary sacrifice of comfort from them. They had persuaded themselves into two delusive beliefs; the one, that if everybody produced a fourth less goods, everybody could still buy as much as before, and even pay a fourth higher price for it; and the other, that this rise of prices, which could not possibly happen, was to supply the means of increasing wages sufficiently to pay the prices. The working men seem to have been ready to let the first delusion pass, at any rate provisionally, as many of them do still, but they set their foot down at the second. They got at the rift in the scheme, so far as it affected their interests, and they saw that while its promises were good its securities were decidedly bad, and refused to have anything further to do with it. And so a bubble which dazzled multitudes for a time in every town it visited, burst at last against the hard common sense of the English working class. The best commentary on such attempts to save society by permanently restricting production to three-fourths of its existing amount is supplied by the fact that whereas the cotton mills of Great Britain were manufacturing only 300 million pounds of cotton in 1834, and employing only 500,000 hands at very indifferent wages, they manufacture 2000 million pounds now, and employ upwards of

700,000 hands at very fair wages. Mr. Fielden thought there was no escape from ruin, and no way back to comfort except permanently restricting the production to 225 million pounds a year; we are now manufacturing ten times the quantity, and the workpeople certainly, and the employers probably, are ten times better off; but where would they have been, had we adopted Mr. Fielden's prescription and continued to keep our production down perforce to the 225 millions?

## CHAPTER VIII

### THE EIGHT-HOURS DAY IN VICTORIA

A WEEK before the May-day demonstrations of last year,<sup>1</sup> at which the working men of Europe and America assembled and cried together to their governments for an eight-hours day of labour, the happier working men of Victoria were celebrating the thirty-fourth anniversary of the attainment of the boon. The 21st of April was Eight Hours Demonstration Day, which has now grown to be the national festival of the colony, and drew to Melbourne last year the greatest throng of people ever seen in the city. The usual procession of the eight-hour trades—composed of 8,000 men and representing fifty separate trades—marched through the principal streets from the Trades Hall, the parliament-house of labour, on to the Friendly Society Gardens, labour's beautiful pleasure-ground. Before them was borne the old patched but venerated banner of 1856,

<sup>1</sup> 1890. This first appeared in the *Economic Journal* of March, 1891, and it seems more convenient to leave it as it was written.

inscribed with the principle, "Eight hours work, eight hours recreation, eight hours rest." Then came the fifty trades in the order of ballot, each with its flags and music and appropriate historical and industrial tableaux, while the rear was brought up by two drags containing the pioneers of the movement, the last gray survivors of those who fought in its first battles and walked in its first processions thirty years ago. In 1857 only 700 men and only nine separate trades took part in the demonstration, and though they played "God Save the Queen" as they passed the Government offices, they kept the balance right by playing the "Marseillaise" when they reached the Houses of Parliament; but now there is not a turbulent thought; Parliament adjourns for the day, the Colonial offices are closed, and the Governor-General, after witnessing the show from the Treasury windows, drives on to the Gardens, receives a loyal address as the representative of the Queen, and then, with leading statesmen and some of the largest employers of labour, sits down to a banquet as the guest of the working men. Speeches are made in which capitalists, politicians, and labourers, all rejoice together over an experiment that once caused many anxieties, but which they now acknowledge has, without doing any injury to trade, given the workpeople time to live the life of rational beings, and in the opinion of some of the speakers, has even developed that remarkable love of out-door enjoyments which is now creating a Merrier England under the Southern Cross. Mean-

while, the great body of the procession disperses over the grounds, where they are joined by their wives families, and friends, and busy themselves with sports, music, and dancing till nightfall. Thirty thousand people swarm about the gardens, but intemperance is not common; and the whole drawings of the day, always a very considerable sum, are given to a public charity as a thank-offering for the blessing whose acquisition is commemorated. Only one shadow falls across the impressive celebration—labour's inevitable shadow, it appears, even under an eight-hours system in a new country—the unemployed, a handful of whom attempted last year, as a demonstration that the eight-hours day was no general panacea, to break their way into the procession under a black flag, inscribed with the fierce legend, "Feed on our flesh and blood, ye capitalist hyena; it is your funeral feast."

It is natural to think that the prolonged and now almost national experiment, which is the occasion of such universal congratulation every year in the community of Victoria, must, if we could only ascertain the facts of it with any degree of accuracy, have light to throw on some of those puzzling questions on which the oracles are now returning contradictory answers. It is true the system has only become general in the colony very recently, and it is not so general yet in Ballarat and Geelong as in Melbourne. The building trades, everywhere the pioneers of short-hour movements—the masons, quarrymen, bricklayers carpenters



plasterers, plumbers, painters, and builders' labourers—have enjoyed it uninterruptedly, though not without severe struggles, since 1856. The coachbuilders also won it at the same time, but lost it in 1859, and did not recover it again for more than twenty years. In amends, however, the iron trades—the engineers, boiler-makers, and iron-moulders—obtained it in 1859, but for the next ten years the only accession to the movement were the shipwrights. From 1869 to 1879 only five more trades joined—the seamen, sailmakers, brickmakers, gas-stokers, and mill-sawyers. In 1879 there were seventeen eight-hour trades in Melbourne, in 1883 there were still only twenty; but in 1884 there were nine new accessions, in 1885 there were five more, in 1886 ten more, in 1888 four, in 1890 two, and in 1891 ten. Sixty trade societies walked in the procession of 1891, but only fifty-two in the procession of 1892. The new accessions include every variety of occupation. skilled and unskilled—bakers, brewers, saddlers, tobacconists, glassbottle-makers, bootmakers, wharf-labourers, agricultural implement-makers, tanners and curriers, cutters and trimmers, pressers, brassfounders, port-manteau-makers, timber-yard employés, aerated water and cordial makers, ironworkers' assistants, railway and public service labourers (navvies), wood-turners, brush-makers, wicker-workers, cigar-makers, corporation labourers (scavengers), engine-drivers, maltsters' assistants, furniture trade employés, confectioners, coopers, coach-builders, felt hatters, printers, bookbinders, tin-

smiths and japanners, farriers, stewards and cooks, stevedores, clickers, jewellers, drivers, rolling stock and wheelwrights. The only trades who still work long hours are the dyers, the tailors (except the cutters, trimmers, and pressers), the textile workers, and the ropemakers. Agricultural labour, too, remains out of the short-hour movement; but the miners, the most numerous industrial occupation in Victoria, among whom the eight-hour shift had obtained for many years only very partially, have now adopted it more generally in consequence of the Mines Regulation Acts 1883 and 1886. These Acts, however, do not apply to alluvial mining, in which accordingly long hours still prevail. Though, as thus appears, less than a third of the trades of the colony have twenty years' experience of the eight-hours day, these trades include much more than half the whole working class; and it is now estimated that only about a fourth of the workpeople of Victoria work more than 8 hours a day.

I have been admonished by a weighty political writer that all this experience contains no possible lesson for England, because the circumstances of a new colony are entirely different from the circumstances of the mother country. And no doubt it may be easier to secure shorter hours at first and to maintain them afterwards in a new country, where wages and profits are both relatively higher, than in an old one, where they are both a little lower; because neither employers nor employed will feel quite the same difficulty about the

loss they frequently—with reason or without it—fear they must incur by the change. But what if the lesson be that this very fear itself is groundless? Whether colonial peculiarities make any difference to the initiation of the reform, they make none to its effects, to the influence, for example, of a reduction in the working day to 8 hours on production, on wages, on the personal efficiency and character of the labouring class, or on the value of legislative intervention as a means of enforcement. Besides, even on the point of initiation, it must be remembered that the eight-hours day is not in Victoria confined in the least to the well-paid trades. It has been adopted in many branches of labour, both skilled and unskilled, in which the usual wages, when compared with the usual cost of living, are worth decidedly less than the wages of the larger and better paid trades in this country. It is certainly not higher wages that has given the dock-labourers or the tanners of Melbourne a shorter day than the masons and engineers of England; and though the artisan's real remuneration is probably as high in California as it is in Victoria—his money wages is twice as high—yet in California, according to the recent Foreign Office Return on the Hours of Adult Labour, none of even the powerful trades enjoy an eight-hours day except the plasterers, and the mass of the labouring population work longer hours than they do in our own country. Victoria and California are practically of the same age; they are peopled with the same stock, and they corre-

spond in climate, production, and industrial history, yet the one is a ten-hour State while the other is an eight-hour one. Colonial peculiarities, therefore, play manifestly a less important part in the matter than other causes.

One of the most recent investigators into the subject, the Special Commissioner of the United States, Mr. McGoppin, in his Report on Labour in Australia, represents the eight-hours day as a fruit of the protectionist system; but nothing is more certain, when we examine the facts, than that though the eight-hours day is more general in Victoria than in New South Wales, the protectionist system has had little or nothing to do with that result. A United States Commissioner might have suspected a conclusion which attributed to the very low tariff of Victoria effects that have never come from the very high tariff of his own country; and as a matter of fact, out of the fifty trades which enjoy the eight-hours day in Victoria, the tariff could not possibly have so much as softened the way for its introduction in more than twelve or fourteen at the most, and in these it is impossible to say how far the tariff has been an efficient cause. Nearly half the fifty trades are trades on which tariffs have no operation; they enjoy a natural protection, because their work can only be done on the spot, and they enjoy that protection as completely in ten-hour countries as in eight-hour ones. Such are the building trades, the gas-stokers, sailors, bakers, printers, stevedores, engineers, farriers, wharf-labourers, slaughter-

men, scavengers, railway servants, and the various groups of unskilled labourers. On the other hand, the trades which still work 10 hours in Melbourne are almost all protected trades. Then the sail-makers, who have never been protected, have had the eight-hours day for a quarter of a century, and the carpenters, iron-moulders, boiler-makers, and smiths, though now protected to some extent, enjoyed the eight-hours day for a good many years before there was a protective tariff in the colony; while the coach-builders, who possessed the eight-hours day for a time and lost it again before the tariff was introduced, were not enabled by eighteen years of protection to recover what they lost.

The Victorian tariff was first introduced in 1866, when a series of low duties were imposed running from 5 to 10 per cent. *ad valorem*, and the principal subsequent changes have occurred in 1874, when the duties were raised, most of them to 20 per cent.; in 1883, when they were further raised to 25 per cent., and finally, in 1889, when some of them were again raised to 35 per cent. Though ten trades have joined the movement since 1889, most of them are entirely unprotected trades like the cooks, stevedores or drivers; and what is more important to observe, only one protected trade, the brickmakers, joined it in the long period between 1866 and 1883. In that latter year twenty trades walked in the annual procession, nineteen of which had come into the eight-hours system without any possible assistance from the tariff, and the

accession of the twentieth cannot be reasonably ascribed to an influence which was in operation for seventeen years without producing the effect. Yet because thirty new trades joined the movement in rapid succession between 1884 and 1888, it has been thought that this fresh start must have been due to the small rise of 5 per cent. which the tariff underwent in 1883. But of these thirty accessions, ten were trades like the printers and wharf-labourers, for example, which were not protected at all, and six more, though protected, got no rise of duty at that particular time.

It is impossible, therefore, to trace the origin of this fresh movement to a tariff revision in which only a minority of trades who moved had any interest. Its true origin was in the fresh impetus given to opinion by the evidence taken before the Commission on Shop Hours in 1882 and 1883. The movement began among the bakers—a trade with no concern in tariffs except to a trifling degree in the matter of biscuits—and several of the Melbourne bakers stated expressly, when they appeared as witnesses before that Commission in 1883, that this agitation had been set agoing by the impression made upon them and their workfellows by the evidence given to the Commission in the end of 1882. Before then the bakers of Melbourne had been working 15 hours a day. They bethought them—so they reasoned—that they had been for a long time paying for short hours to their neighbours, and that their neighbours ought now to pay for short hours to

them ; they resolved to have their day reduced first to 10 hours, and then, after a few months, they resolved again to have it reduced to 8, and though far from being a powerful trade—for they are scattered in very small shops employing only two to four hands each, so that in a strike their places are easily filled—they succeeded in securing this great reduction of their working day, and what is not a little remarkable, in securing it without putting a farthing on the price of the loaf, without losing a sixpence of wages, and without providing room for more than half the unemployed bakers in the city. Their victory made an impression on the other trades, and the movement spread. In obtaining that victory they owed much to the support given them by the powerful organization of the combined eight-hour trades, but they owed nothing to any change of law or any rise of wages. Their wages, indeed, were very low at the time—only 25s. to 35s. a week in 1883, as compared with 40s. to 42s. in 1881, or 50s. in 1885. Nothing had changed in their circumstances, but only in their will to have what they saw other working men have ; and that change was caused, as changes of opinion very commonly are, by the publication of facts which excited discussion among them, and awakened their ambition to obtain the social advantages which others of their own class had long been enjoying. Possibly a new and better educated generation had risen, but anyhow, they came to set a value on the short day they had not set before, and to feel it to be

for them, what it already was for so many of their friends, an essential of existence. One more section of the working class had added the short day to their standard of life, to the sum of comforts which the opinions and habits of their class make daily necessities of being ; and the sentiment passed on from trade to trade, and stopped only when it reached those which are largely affected by the opinion and habits of women. The principal branches of industry in which long hours still prevail in Melbourne are those in which women are largely employed—the tailor trade in which two-thirds of the hands are women, and the textile factories, like the wool mills, for example, in which there are three women employed for every four men, or the rope and jute works, in which there are three women for every two men. Some of the clothing factories run only 8 hours a day, but then they usually give out work to their tailoresses to be done at home after factory hours, or they have a number of out-workers, who work any hours they like, and who would only like there were more than 12 hours in the day. Women's wages are very low in Melbourne as elsewhere, and women are therefore willing to work longer than men because an hour's pay has more value for them than an hour's leisure. The English Ten Hours Act was always more popular, both before it passed and after, among the adult males, whose earnings it incidentally reduced, than among the female operatives for whose special protection it was devised. Its advocates had never



done complaining of the apathy with which it was viewed by the married women, and the persistent opposition of the unmarried. And in Melbourne the voice of the female factory hands before the Shop Hours Commission in 1883 and 1884 was raised in favour of the long working day. They did not find 10 hours in a mill too much for their strength; they were never exhausted at the end of the day, and they much preferred walking home in the cool of the evening to walking home in the heat of the afternoon. Their real preference, no doubt, was for a little more money, and as long as women's wages are low, and even their reasonable requirements in matters like dress are comparatively expensive, women will always give up an hour's leisure for an hour's pay. The Factory Acts of Victoria of 1874 and 1885, accordingly, which provide an eight-hours limit for female work in factories, have remained largely in suspense from the first at the female operatives' own request.

The history of the movement in Victoria, in fact, is just a history of the successive ripening of an eight-hours opinion among the working class, trade by trade. The trades that first obtained the boon—the building trades, who wrought in the sun, and the iron trades, who wrought before fire—looked upon the shorter day as a simple necessity in the Australian climate, which they would not do without, and were quite prepared, if necessary, to pay for by some corresponding sacrifice of wages. Even when they asked for the change in the

interests of rational and intellectual recreation, the speakers seemed to lay less stress on the long hours leaving them no time for such things, than on the long hours leaving them too exhausted to care for them. A Ballarat blacksmith said he was very fond of philosophical studies, but after ten hours before a smithy fire in Victoria he was in no condition to apply himself to such subjects with any pleasure. They may have been mistaken, as many people say they were, in thinking the climate of Victoria so enervating. The temperature of Melbourne is very much the same as the temperature of Lisbon or Marseilles; and a climate cannot be really debilitating which has developed so universal a delight in out-door sports, and produced athletes like the cricketers and scullers of Australia. But whether the idea was mistaken or no, it undoubtedly had a principal influence in creating in these trades their original determination in favour of short hours. It was always the main plea of the pioneers of the movement. A joiner, who had wrought in the West Indies and in Brazil, said he found it far more trying to work in Victoria than to work in those countries. Doctors came forward, both at Melbourne and at Ballarat, and declared ten hours a day in the glaring sun of Australia was deadly, and left a man fit for nothing but drink or sleep. Many of the employers, too, having been themselves workmen when they first settled in the colony, agreed the more readily to the shortening of the day because they admitted, from their own personal experience, that eight hours a

day was long enough for any man to labour in that climate in the open air. And it is certain that the masons, slaters, plasterers, and bricklayers are the most unhealthy of the skilled trades in Victoria, except the dyers, whereas in this country many other trades are more unhealthy. Victorian statistics on the subject only exist for the three years 1880—1882; but, according to the mean of these years, while the general death-rate of Victoria was 14·73 per 1,000, the death-rate of the masons, slaters, plasterers, and bricklayers was 25·43 per 1,000. The masons complained much too that the stone of Victoria was particularly hard to work.

In these trades, therefore, the eight hours question never really was a wages question at all. The men were willing from the first to purchase the reduction of hours by a sacrifice of wages. When they began their agitation in 1856 their wages had fallen to half what they were two years before, and, as we learn from official figures, they went a much less way in the purchase of commodities than labourers' wages have ever gone in that colony either before or since; but the men freely offered their employers to take a shilling a day less wages until the expiry of existing contracts. And when a further, and, indeed, very serious fall of wages became inevitable in 1859, they still steadfastly refused to break that fall in the least by returning to long hours; and through all the bitter and protracted conflict of that year they held immovably by the position that wages were matters for arrangement, but on the eight hours

day there should be no surrender. This conflict of 1859 was the real fight for the eight-hours day, and it was one of the severest in the annals of labour. In 1856 the eight hours day had been won almost without a struggle. There was neither strike nor street demonstration. The masons at Melbourne University began to moot the subject in February; the building trades had their first public meeting about it on the 21st of March, and they wrought their first eight-hours day on the 22nd of April. But in 1859 the situation had changed. The decline of the gold-fields had left a great redundancy of labour in the colony. Relief works were started in Melbourne as far back as April, 1858, and before the end of that year one-third of the masons of Victoria were out of employment; many of the carpenters were taking sub-contracts, from which they made no more than 6s. a day after working ten or eleven hours. At last one of the largest employers of labour, the contractor for the new State railway—who, by the way, had shortly before quoted with approval an observation made to him in a private letter from John Bright, which I think is worth repeating here, because Mr. Bright is so usually supposed to have been an opponent of short hours: “If you ever suffer the ten-hours system to rear its head in Victoria again you are unworthy of the name of men”—this very contractor now seized the opportunity to enforce simultaneously a reduction of wages and an extension of hours. The men said they would take any reduction of wages the

state of the labour market required ; but in the words of Mr. Don, their parliamentary champion, " as to the eight-hours question, they had nailed their colours to mast, and if they were shot away, they would fight for the holes left by the shot." There is no need to relate the history of the struggle which followed, one of the most skilful as well as hard which working men have ever conducted ; but after being four months out on strike they succeeded, as men with that spirit must needs have done, in preserving their short day, and it has never been threatened since.

The coach-builders, on the other hand, who had obtained the eight-hours day in 1856, a little later than the building trades, lost it again in this year 1859, because, working under cover, they did not set the same store by short hours as the masons and bricklayers, and preferred to keep their wages up by returning to the ten-hours day. When their hours were reduced to eight, their employers began to pay them by the piece instead of by the day, and, finding they did not earn so much in the eight hours as they used to do in the ten, many of the men had already repented of the change, and as Mr. Healey, the Postmaster-General of the colony, and himself a coach-builder, stated in the Legislative Assembly, they had, many of them, long since been praying for the ten-hours system again. Consequently, when the contractor for the carriages of the new State railway restored the ten-hours system in his workshops, his men were too divided in opinion to

resist, and his example was soon followed by the rest of the trade. The coach-builders remained a ten-hours trade till the general recrudescence of the eight hours movement in 1884. A ten per cent. import duty was imposed on carriages in 1866, and a twenty per cent. duty in 1874; but these availed nothing to restore to the coach-builders the short day. What, then, happened before 1884 to enable them to recover then what they had lost for a quarter of a century? A new generation had arisen in the interval, which probably set more store by the short hours for their own sake, and which certainly felt stirred by the example they had before them of other trades enjoying the leisure of a short day now for so many years without appearing to suffer anything in consequence. A certain awakening of opinion took place—indeed, in 1884 a curious wave of social awakening passed successively over every country of the world. And—not the least important factor—the federation of the eight hours trades, the Amalgamated Trades Association, which was founded at the origin of the movement in 1856, and to which every trade is admitted as soon as it acquires the eight-hours day, had now grown into a very powerful organization, which was able to be of the most effectual assistance to the weaker trades in their efforts for the short day. It helped them to set agitation agoing, to establish unions, and to undertake the risk of strikes. This body is probably as powerful a working-class organization as exists in the world, composed as it is of

the unions of more than fifty different trades, all knit compactly together under an executive known at first as the Operatives' Board of Trade, and now as the Trades' Hall Council, and quartered in a spacious mansion-house erected by the trades themselves on a site presented to them by the Government. This federation has made the eight-hours day the cornerstone of the whole labour movement of Australia. It has committed mistakes—grievous mistakes, for example, in the recent strike—but when one thinks of the political force it could exert if it chose, one is astonished at its moderation. Lord Hopetoun was right when he told the working men of Melbourne on Demonstration Day of 1890 that it was their organization that made them so loyal and law-abiding. It has made them independent of the State's offices, good or bad, and when they can do so much for themselves, they have the less reason to ask anything from the State, or resent the State's refusal. Anyhow, in this whole eight hours history they have had little assistance from Government, or from legislation.

The Government did give some help to the original movement in 1856, for perhaps half the labourers in Victoria were employed at that time by Government contractors on public works of one kind or another, and the labourers were fortunate in having in the Minister of Works (or Surveyor-General, as he was then called) Captain (now Lieutenant-General Sir Andrew) Clarke, a very warm friend of their cause, whose word had great

weight in smoothing their difficulties with the contractors. Moreover, when all the contractors had given in except one, the contractor for the Houses of Parliament, the Government then removed this last obstacle by refusing the contractor's request for leave to suspend operations for a month in order to fight the matter out, but undertaking to compensate him for any loss he might sustain through the reduction in the hours of labour. They did pay him this compensation. But when the great struggle of 1859 broke out a new ministry was in power, and they were disposed at first to take the employers' side. When the masons struck this ministry gave the railway contractor permission to substitute iron or wood for stone in the construction of the bridges; they refused to interfere with the railway carriage contractor for raising the hours to ten, on the ground that he could justly come upon them for compensation if they obliged him to go back to eight; and they at first flatly declined introducing the eight hours system into their own engineering works at Williams-town, on the plea that the change would involve extra expenditure for which no provision had been made in the estimates, and therefore could not be undertaken without the sanction of the legislature. They afterwards yielded, however, because they felt that as eight hours was the rule in private engineering works, it would be impossible for the Government to hold out as an exception. In Victoria, accordingly, Government works did not set the example but followed it. The



eight-hours day is now the rule in all public work, and was introduced as a mere incident of administration by the executive Government without Act of Parliament.

The subject has been repeatedly before the Victorian Parliament. A general election took place in 1859, the very year of the great struggle, but the legal eight-hours day played no figure in it, though it did occasionally appear upon the scene. Immediately on the opening of the new Legislative Assembly in the same year, Mr. Don, the Parliamentary leader of the working class, moved a resolution, "That in the opinion of this House it is desirable that all future contracts should be let on the understanding that eight hours should be considered the term of the day's work." He held that the eight-hours day was a simple necessity of the climate, and that it must become the rule everywhere in the colony if it once became the rule in public works, because Government was practically much the largest employer in the colony, and its example was therefore bound to be followed. He said there were 8,000 men engaged in public works, either directly under Government or under Government contractors, and all the other employers in the colony put together did not employ another 8,000. No direct negative was proposed to this resolution, but two amendments were introduced, representing the chief modifications of opinion on the subject which we find prevailing among ourselves now. Mr. Bailey proposed, "That in all future contracts involving the question of day labour, the payment of

wages should be computed on the principle of eight hours for a full day's work,"—i.e. the eight-hours normal day as a mere basis for charging overtime; and Mr. Healey, the Postmaster-General, proposed, "That in all cases where a trade had established the eight-hours system, the contracts should recognize it." He would support trades in acquiring the eight-hours day voluntarily, but he would not have it forced on any of them, for he said he was once a working man himself, and thought it wrong to prevent a man from working extra time when he wanted to improve his condition or provide for his family. After a very little more discussion Mr. Don withdrew his resolution entirely, and the question was dropped without going to a vote. No further legislative action was taken on the subject till 1869, when an eight-hours Factory Bill was brought in by Mr. Casey, and passed the second reading, but was then discharged from the notice-paper. It was reintroduced by him in 1870, but got no further than the first reading; but a little later in the same year Mr. Everard succeeded in carrying a resolution affirming the necessity of legalizing the eight-hours day, though the House afterwards refused to apply the principle practically to workshops and factories. This was done, however, at length by the Factory Act of 1874, and renewed in the new Factory Acts of 1885 and 1890, which forbid the employment in any factory or workroom of any female, or of any male under the age of 16, for more than 48 hours in any one week in preparing or manu-

facturing articles for trade or sale. But these Acts contain a proviso that the Minister of Trade may, if he think fit after inquiry, suspend the operation of the Act in any or all workshops and factories, and in consequence of this provision the Acts have practically remained in abeyance in certain kinds of industries—*e.g.* the silk and wool factories—from the first. Employer and operative, male and female, all petitioned the Minister for the suspension of the eight-hours clause, and it has consequently remained to a great extent mere dead letter. In a democratic community, a ministry cannot afford to offend any considerable section of the population by inflicting penalties on them for judging for themselves on what they will think the purely personal question, whether they will have an hour's pay or an hour's leisure. A few of the factories—clothing factories chiefly—seem, however, to have adopted the eight-hours rule of their own accord, but now they usually give out work to be done at home after factory hours, and no doubt to be specially paid for. But in the less important factories, and especially in private workshops, there is, according to the Report of the Royal Commission on Employés in Shops in 1884, no rule about hours of labour. "Employés generally commence at 8.30 or 9 A.M., and with half an hour's, or sometimes with only a quarter of an hour's intermission for meals, they continue to labour often far into the night. Some of the hands also carry home the work with them, and labour for many hours after the factories

are closed. In millinery and dressmaking there is often a show of complying with the more humane system of eight hours work daily; as a matter of fact, however, this is the exception rather than the rule. The front doors are closed, and young girls are kept for many hours, and during the busy season all night, to work and execute the orders received. There is reason to believe that no appreciable extra remuneration is given for the work done during over-hours. The greatest offenders in this respect—and this shows another of the means by which the eight-hours Factory Act has been nullified—are employers who contract to evade the provisions of the Act by engaging only the number of hands that exempt them and their premises from the operation of the Act, and young girls are for the greater part the sufferers.”

There are a few special Acts with an eight-hours clause in them, but even these seem to have been attended with some difficulty in the execution. Mr. Fairfield mentions two in his interesting essay on “State Socialism in the Antipodes” in Mr. Mackay’s *Plea for Liberty*. One is the Regulation of Mines Act, 1883, which forbids the employment of any person underground, except in case of emergency, for more than eight consecutive hours from the time he commences to descend the mine until he is relieved of his work, and for its better enforcement this Act was supplemented in 1886 by an Amending Act, which threw the burden of proving innocence of charges under it upon the mine-

owner. The other is the Melbourne Tramway and Omnibus Act, also of the year 1883—the year in which, through the Shop Commission and general causes, public attention was specially awakened to the hours of labour. This Act also contains an eight-hours clause, but permits overtime for special payment to such an extent as shall not make the total time wrought more than sixty hours a week. A third Act, containing an eight-hours clause, originated in the same period. The Melbourne Harbour Trust Act of 1876 did not contain such a clause, but the Melbourne Harbour Trust Act of 1883 does, and it is continued in the Melbourne Harbour Trust Act of 1890. It requires the Harbour Commissioners to bind every contractor they employ on works of improvement by a special condition in the contract to employ no workman or labourer longer than eight hours a day, and it forbids the Commissioners themselves from employing men more than eight hours a day except in case of accident or emergency. But this clause is not the source of a privilege, but only an additional security for its preservation. Most of the trades likely to be employed on such works of improvement were already in possession of the eight-hours day before 1883, and even before the earlier Act of 1876, and the presence of the eight-hours clause in the Act of 1883, and in the Mines Regulation Act, and the Tramways Act of the same year, is merely a result of that revival of eight-hours opinion in Victoria about that date to which I have already alluded, and which in the course of the next

few years raised the number of eight-hour trades in the colony from 20 to 60 without any help from legislation at all. Under the influence of this revival of interest in the eight-hours question, a general eight-hours Bill for all industries was introduced into the Legislative Assembly in 1884 and carried, but was rejected by the Legislative Council, because, says Dr. Pearson, it was not a Government measure, and in December, 1890, the subject was again brought before the Lower House by Mr. Trenwith, a working-class leader, who proposed and carried a resolution that, in view of the widespread and rapidly growing feeling in favour of the eight-hours system of labour, it is the duty of the Government to introduce at an early date, not later than the beginning of next session, a Bill to legalise the system where practicable in connection with all departments of industry in Victoria. The clause "where practicable," was introduced into the resolution, Mr. Trenwith explained, to conciliate the agricultural interest, and to exempt agriculture from the operation of the law, and any other trades which might be injuriously affected by it. Nothing has as yet however come of this resolution. Occasionally some of the ordinary trades, while they were still working long hours, thought of applying for Eight Hours Acts. The engine-drivers in Melbourne flour mills were working in 1882 twelve hours a day—two twelve-hour shifts; but they had no trade union, and some of them came before the Shop Hours Commission of 1882-3, and said there was no remedy but

legislation, because while they themselves believed there was no risk in the reduction, many of their workfellows could not see things in that light. And the bakers, who had already established a union, and even obtained a reduction of their hours by it, came before the same Commission with the same request for short-hour legislation, because they feared they could not maintain even the ten hours limit so long as some employers were still allowed to adhere to fifteen. But before another year passed engine-drivers and bakers were both walking in the eight-hours procession, the bakers under a banner on which they inscribed the secret of their success, "They who would be free, themselves must strike the blow."

The eight-hours system in Victoria, therefore, depends hardly at all on law, but we may say wholly on opinion, on working-class opinion, the opinion of men who want the short day for the sake of the short day, and are willing to purchase it, if necessary, even by a reduction of wages. The advocates of the movement in Victoria never seemed to have entertained the idea—I have at least never seen it in any of their remarks—of obtaining the eight-hours day merely as a means of charging more overtime; and though I have repeatedly found them, in the early beginnings of the agitation in 1856 harbouring the delusion that shortening the hours of labour was the sure road to higher wages, that idea seems to have disappeared under subsequent experience; for in the movement of 1884 the argument always used by the bakers and other agitating trades was, "We have been

hitherto paying for the short day the masons and the carpenters have been enjoying, let them now pay for a short day for us." Their hope was to save wages by a rise of prices.

So much then for the history of the eight hours movement in Victoria. Let us now pass on to consider what have been the results of the eight hours system in that colony; and we may begin with the subject of wages which we have just been mentioning. What has been the effect of the eight-hours day on wages in Victoria? To all outward appearance, at any rate, it has had no effect on wages at all; it has neither raised them nor reduced them. The wages in all the building trades remained exactly the same from 1856, when they shortened their hours of labour, till 1860. Some of the men may have taken a shilling less than the current rate till the expiry of the contracts they were working on, but the current rate for all these trades was 15s. a day in 1856, and continued 15s. till 1860. It fell in that year, and stood from 8s. to 10s. till 1872, when it rose to 10s. as a minimum, and has remained at that figure ever since. The fall in 1860 had nothing to do with the shortening of the hours; it was due to the redundancy of labour of which I have spoken, and to the great fall that had taken place since 1856 in the cost of living. The Registrar-General of the colony published figures in 1861 showing the effect of this cheapening of the necessaries of life on the working man's budget. He estimated the wages and



expenditure of the Melbourne artisan to be as follows in the years 1854, 1857, and 1861 :—

Year.	Wages per day.	Expenditure per Week.	Surplus per Week.
1854	30s.	£7 0 3½	£1 19 8½
1857	15s.	3 13 4½	16 7½
1861	12s.	2 7 4	1 4 8

Though his money wages, therefore, had fallen, his real wages had, in fact, materially risen, and as the cost of living has gone on cheapening ever since, and has, according to the evidence given by working men before the Tariff Commission, not even been affected by the protective duties, what the working men of Melbourne have been experiencing has been a constant rise in their real wages. But this rise has not come from the shortening of the hours or the employing of the unemployed, but obviously from other causes.

Blacksmiths got the eight hours day in 1859, just before the general fall of wages in 1860, but this shorter day had no influence in saving them from that fall. Their wages, which were 13s. a day in 1859, sunk to 11s. in 1860, and settled at from 8s. to 10s. in 1863, rising again, with those of the other trades, in 1872, to from 10s. to 12s. We have figures for only some of the trades which obtained the eight-hours day in 1883 and the following year, but these figures show the same result. The wages of those trades have neither risen nor fallen. The bookbinders, who got the

eight-hours day in 1883, had from £2 to £3 a week in the years 1880-83, and they had still £2 to £3 a week in the years 1885-87. The coopers, who obtained the boon the same year, had 10s. a day in 1880-83 and still had 10s. a day in 1885-87. The boot-makers, becoming an eight-hours trade in 1885, were still paid in 1887 at the old rates, but then these were piece rates. The tanners adopted the system in 1886, and were still paid the same old rate of wages in 1887. The saddlers, who first joined the procession in 1885, had £2 to £3 a week in 1883-85, and still had £2 to £3 a week in 1886-88. The printers and hatters, who were paid by the piece, effected a small rise, but whether by way of keeping their daily earnings the same as before I am unable to say; and the farriers' wages which did not rise the first two years after the change, showed a tendency to rise in the next two. The bakers, who had been paid 40s. a week up to 1881, received only from 25s. to 35s. in 1882 and 1883, but after the reduction of their hours from 15 to 10 in the latter year, their wages rose to 50s., and when their hours were a few months afterwards again reduced from 10 to 8, their wages remained unchanged, and have been 50s. a week ever since. The experience of the coach-builders is a little peculiar. They got the eight-hours day in 1883 or 1884, when their wages had been for some years from £3 10s. to £5 or £6 a week, and for the first year thereafter—1885—their wages continued at the same figure; but in 1886 they sank a little, and for the three

years 1886-88 they stood at from £3 to £4. The peculiarity is that this fall in wages took place, as will presently appear, simultaneously with a considerable and progressive increase in the number of hands employed, and in the annual production of the coach works.

The very notable rise in bakers' wages was a result of the same agitation which procured the shortening of their hours, but was not occasioned by any increased demand for labour that shortening may have caused. When the first reduction of their hours from fifteen to ten took place, only thirty of the unemployed bakers were taken on, and sixty still remained out. The short day had only been introduced into 50 out of the 200 bake-shops of Melbourne, but these 50 shops employed not less than 200 men, and yet, though the hours of these 200 men were suddenly reduced by a third, it needed less than a sixth more new hands to do the same work. If the reduction from fifteen hours to ten made so little difference in the number of the unemployed, the reduction from ten to eight would make less.

The prevailing idea that a uniform eight hours day will abolish the unemployed is of course chimerical, because shortening the hours of labour reaches none of the more common causes that produce the unemployed; and in Victoria the problem of the unemployed often assumes much graver proportions than it does at home. I have already mentioned the great redundancy of labour in 1859, due to the decline in the

production of the gold-fields, and an eight-hours day could obviously do nothing to check that. Then Victoria has its own measure—one sometimes thinks a double measure—of the unsettled class, the “sun-downers,” “swagmen,” remittance men, ne’er-do-weels, who will work now for a season at sheepshearing or again for a season at the diggings, but are found most of the time wandering about the country from station to station looking for work, and generally preferring not to obtain it. An eight-hours day is no remedy for this complaint. Then even in the ordinary occupations there seems to be in some ways more unsteadiness of employment in Victoria than at home, more changing of masters, and more time lost consequently between job and job. That was remarked upon by several of the witnesses before the Shops Commission. Mr. John Reynolds, for example, a working engineer, who emigrated to Victoria in 1870, said, “There is a great difference in steadiness of employment here and at home. At home you may serve your time in a shop, and be in it till you are an old man. There is one case, perhaps, out of every hundred where that is the case.” That, he said, never occurred in Victoria, and he thought this irregularity of employment in the colony was so considerable that it kept wages down. The same circumstance is noted in a report issued by the Operatives’ Board of Trade of Melbourne on the 15th of April, 1859, which complained that though wages in Victoria were nominally high, they were

barely sufficient to maintain a man in the position held by his fellow-workmen in Great Britain; "through the time he loses from one job to another looking for employment." This peculiarity also is one which an eight-hours day has no charm against. Nor has it any charm against those great depressions which the whole world feels in common. The *Australian Ironmonger* for 1887 (p. 47) quotes a report of the Boilermakers' Society of England, stating that out of a total of 28,000 members, it had on an average 8,000 unemployed for the previous three years, and then mentions that there were then fifty boilermakers unemployed in Melbourne out of a total of 230. The proportion is smaller, but it is more striking when we reflect how much of the Australian work must be repairs, and it shows plainly enough that the great trade depressions make little difference between an eight-hours country and a ten-hours one. From these or other causes there is, as the American consul reports in 1884, almost every year an outcry about the unemployed in Melbourne in the dull season, notwithstanding that immigration is now rather discouraged than otherwise; that the colony is virtually exempt from some of the most fertile causes of interruption of work elsewhere, for example, bad weather; and that it possesses in tolerable perfection the two correctives for the evil which are most confidently pressed upon us at home: (1st) access to the land and an active demand for agricultural labour, and (2nd) a constant supply of Government work undertaken to

some extent with the very view of providing employment and preventing wages from falling.

There are very few available data as to the immediate effect of the reduction of hours in particular branches of trade in Melbourne upon the number of workmen employed in those branches, and the data which exist can support no definite conclusion. They show the most opposite results, and are of little value without a knowledge of the concurrent causes that have obviously conspired in their production. Brewing was a growing trade when the eight-hours day was adopted by it in 1885, and it has gone on steadily increasing both its plant and its number of hands employed every year since; but if the increase of horsepower may be taken as an index of the general increase of plant, then in the year when it first shortened the day it increased its hands in a larger ratio than that of the increase of its plant. The breweries employed  $2\frac{1}{4}$  men for every horse-power in 1884, and they employed  $2\frac{1}{5}$  in 1886, and  $2\frac{1}{2}$  in 1887 and 1888, but they employed as many as  $2\frac{1}{3}$  in 1885. The coachmakers have gone on year by year increasing the number of hands employed since they adopted the short day, while the saddlers and boot-makers have gone on reducing it, and the agricultural implement makers reduced it the first two years after the change, but are recovering ground now. The tanners had thirty-eight fewer hands employed the year after the reduction of hours than they had the year before. Most of these figures will be given later

on in connection with another part of the subject, and there is at least one conclusion of practical importance which they amply support. They show the utter folly of the assumption, so much pressed by the more ignorant advocates of an Eight Hours Bill, that the shortening of the day of labour has the necessary, certain, and uniform effect of abolishing the unemployed.

On the whole the reduction of the working day to eight hours has had no very sensible influence on the numbers of the unemployed in Victoria any more than on the rate of wages, and both these circumstances point to the conclusion, to which other and more direct evidence also conducts, that shortening the day has exercised but very inconsiderable effect on the amount of the workmen's production. A shortening of hours has always two immediate effects—it improves the mettle of the masters, and it improves the mettle of the men. The masters set themselves at once to practise economies of various sorts, to make more efficient arrangements of the work, to introduce better machinery or to speed the old, to try the double shift and other expedients to maintain and even augment the production of their works. The men return to their toil in better heart after their ampler rest, reinvigorated both in nerve and muscle, and make up in the result sometimes in part, sometimes wholly, by the intensity of their labour for the loss of its duration. Victorian experience shows the recoupment almost complete.

There is an occasional tendency, apparently, to a

diminution of the number of establishments in a trade after the shortening of the day, but none to the diminution of their gross produce. Probably some of the weaker employers—those with insufficient capital or inferior skill or old-fashioned plant—are forced by the change to go to the wall or to amalgamate with a more enterprising neighbour.

The brewers of Melbourne conceded the eight-hours day in 1885; and some of them, as I am informed through private sources, had recourse within the following years to the double-shift system, and acknowledged that while they had looked with great dread to the effects of the short hours before they were granted, they have found themselves now more prosperous than ever. But the effect of the short hours in reducing the number of establishments and of the double shift in increasing the number of hands and of the whole change on the general production of the Victorian breweries may be gathered from the following table, taken from the official statistics of the colony:—

Year.	No. of Establishments.	Horsepower.	Hands.	Gallons of Beer produced.
1884	70	425	860	13,723,371
1885	74	444	955	14,400,749
1886	74	472	975	14,753,152
1887	72	502	1,037	16,088,462
1888	68	512	1,063	17,828,453

These figures are for the whole of Victoria, and the eight-hours day may not have been introduced into



provincial establishments at the same time as it was introduced in the town of Melbourne, and for that matter may not be introduced into them even yet, but then Melbourne contains half the people of the colony and much more than half the industry.

The saddlers also adopted the eight-hours day in 1885, and in their case likewise there is a diminution in the number of establishments and an increase in their produce, but at the same time, curiously enough, a decided decline in the number of hands employed.

Year.	Establishments.	Hands.	Product.
1884	63	636	£87,131
1885	62	593	87,054
1886	63	579	89,905
1887	53	496	90,970
1888	57	465	97,592

The bootmakers, who also received the eight-hours day in 1885, show a decline in the number of the establishments, a decline in the number of hands employed, and a slight but not immediate decline in the product.

Year.	Establishments.	Hands.	Product.
1884	94	4,165	£203,351
1885	107	4,088	203,968
1886	91	4,100	205,773
1887	92	3,574	189,028
1888	97	3,886	199,228

The agricultural implement-makers obtained the

eight-hours day in 1886,<sup>1</sup> and in their case there followed an increase in the number of the establishments and in the value of the general product, but a temporary diminution in the number of hands employed.

Year.	Establishments.	Hands.	Product.
1885	54	1,152	£114,419
1886	55	1,023	189,794
1887	63	948	143,937
1888	62	1,051	151,608

The coachmakers introduced the eight-hours day in 1883 or 1884 (I am unable to ascertain more exactly), and have gone on steadily ever since increasing the number of their establishments, the number of hands employed, the general amount of their product, and as is also the case in most of the other examples I have adduced, the amount of product per hand employed.

Year.	Establishments.	Hands.	Value of Product.
1884	162	2,124	£256,868
1885	168	2,204	247,361
1886	174	2,395	288,695
1887	183	2,407	290,135
1888	195	2,720	361,690

<sup>1</sup> When I speak of these trades as having obtained the short day in a particular year, I mean that they walked for the first time as an eight-hours trade in the procession of that particular year on Demonstration Day, 21st April. They may have actually obtained the concession any time between that date and the same day the year before, but I have no means of stating the time more precisely.

Of course, differences in the value of the product are not the same thing as differences in its amount, and the figures must be taken for what they are worth. Only I think they tend to support the conclusion that the shortening of the day to eight hours has not been followed by any corresponding loss of product, but rather—whatever it be due to—by an increase of product, and even by an increase per hand employed. Much of that result may flow, no doubt, from better management on the part of employers and other general causes of progress, but much of it also undoubtedly arises from an improvement in the industrial efficiency of the artisans themselves, the direct effect of the leisure they have acquired.

It is almost a universal opinion in the colony that the men work harder now while they are at their work, and that they turn out work of a better quality than they did under the long-hour system. Mr. Hodgkinson, a public man of Victoria, said in his speech at the eight-hours demonstration of 1873, that he had often watched men working in the Public Gardens, and that though left to themselves very much they worked as well as when under contractors, that the Government stroke was unknown among them, and that he was convinced they did more work now in the eight-hours day than they did before in the ten. A very recent writer, Mr. Charles Fairfield, speaks of the "go" which is conspicuous in some of the out-door trades of Victoria. "The leisure enjoyed by colonial workmen,

their brisk, cheerful, and robust appearance, and the activity and 'go' displayed by one or two of the outdoor trades (such as masons and house carpenters) who work under the eight-hour system are pleasant to behold."<sup>1</sup> An English business man, who has written an account of his visit to Victoria, says he saw men in Melbourne getting as much work to do in a day as would have been allotted to two men in this country, and that the lifts they took were more suitable for steam power than for human beings.<sup>2</sup> Lord Brassey, in a paper read in 1888 to the Royal Colonial Institute on "Recent Impressions of Australia," speaks of the "remarkable physique" of the Australian navy, and in the discussion on his lordship's paper Rear-Admiral Sir George Tryon said he had on behalf of the Admiralty spent many thousands of pounds in wages in Australia during the previous few years, and that "though the wages were high, the work done was good, and the cost not so great as might be supposed. The men," he continued, "give a good day's work. It is true that they put down their tools the very instant the dinner-bell rings, but they do not dawdle and prepare for that event half an hour before." Captain W. H. Henderson, R.N., for many years in command of H.M.S. *Nelson* in Australian waters, gave even stronger testimony to the same effect. "During the time I was out there I was brought into communication

<sup>1</sup> Mackay's *Plea for Liberty*, p. 163.

<sup>2</sup> Duncan, *Journal of Voyage to Australia*, p. 153.

with every class of society, from statesmen to the shipping population. I have often had much to do with the lumpers—that is, the men who discharge cargoes, coal especially, and I have no hesitation in saying that they do their work better than in the old country, and will coal a ship three times as fast. I have watched them at their meals also. Many people at home would be astonished at the comparative luxuries in the way of food which they are able to command, and at the excellent way in which their food is cooked, showing that in this respect their housewives have risen to the occasion and have not deteriorated. In the large towns there are means of public recreation and improvement which have hitherto hardly existed with us, and they are fully appreciated and made use of by the wage-earning classes. I have often, for my own part, watched them crowding into the parks, national galleries, and botanical gardens on Bank Holidays, and have been struck with the well-to-do appearance of their wives and children, with their quiet and orderly demeanour and behaviour, and apparent content with their lot.”<sup>1</sup>

Much of this increase of energy, no doubt, may be attributable to the meat diet of the people. The Australians eat more meat than any other people on the earth; a colonial statistician gives the average yearly consumption of beef, mutton, and pork per inhabitant as 276lbs. in Australia and only 105lbs in

<sup>1</sup> *Proceedings of Royal Colonial Institute*, xix. 122.

Great Britain, and 120lbs. in the United States. This diet must doubtless have co-operated, but done no more than co-operate, with shorter work hours and the longer time spent in the open air which shorter work hours permit, to produce the "Australian born type," who is thus described by an anonymous but capable writer. "Wiry and athletic, he is much stronger than he looks. He will generally do manual labour after a fashion, and at a pace that would astonish many a Kent or Sussex yokel. If he has not the abnormally broad shoulders of the English navvy or farm labourer, neither has he the bowed frame, the bent back, the shortened limbs of the European hind. With all his faults, he is much more as Nature made him, unwasted by ceaseless compulsory labour and more capable of rational enjoyment of life."

It is, I think, beyond question that the shortening of the day to eight hours has improved the efficiency of the labour during the time employed both as to quantity and quality, and there is every probability that in some trades and some particular kinds of work this cause alone would lead to as much being done in the short day as the long one. The smallness of the sum awarded in 1857 to the contractor for the Houses of Parliament in Melbourne as compensation for the loss he sustained through the shortening of the day, shows that in the building trades the change made very little difference. I cannot say how many men were employed on that building, but the job was a large one, over £400,000. The

vote to which the compensation was appended as a supplementary vote was for £20,000, but this supplementary vote itself for eight months' loss was only £1,800, or the wages of ten men at 15s. a day. Apparently, therefore, he needed only ten new hands, so that the work done by the old ones cannot have been very substantially diminished. Mr. James Stephens, the originator of the movement in Melbourne, is said to have ascertained by practical experiment in his brick-making works, that the men did quite as much in eight hours as they used to do in the ten. In some trades, *e.g.* the confectioners, the prices of their wares were very slightly raised at the time of the reduction of the day in order to meet the extra expenditure on labour the change entailed. The bakers said they would have had to put a halfpenny on the four-pound loaf if wheat had not fallen at the time a shilling a bushel. But in the building trades, while there was no change in their wages between 1856 and 1859, the commodity they produce had actually cheapened, and the fall of house-rents was one of the pleas on which their wages were reduced in the latter year. It is true that all prices were falling in Victoria at the time, but had there been any very sensible difference in the amount of the individual artizan's daily production, it would have withstood that general downward tendency.

Moreover, it ought to be remembered that the actual change in the length of the day is not so great as it seems on the face of it to be. The difference between

the ten-hours day and the eight-hours day in Victoria is not two hours, but only three-quarters of an hour. This is distinctly stated by Mr. J. A. Aldwell in an essay on the subject which won the prize offered by the Australian Eight Hours League in 1856. "It has been broadly asserted," says he, "that the success of the eight-hours movement would entail a loss of two hours per day to employers. After a stricter examination this statement will not be found correct. The real difference of time between the old system and the new cannot be proved to be more than three-quarters of an hour per diem. . . . In the face of more and better work in eight hours (virtually nine hours and a quarter) than in ten hours (actually but eight and three-quarters, allowing for the time of meals), no employer can maintain that he would be a loser." Under the old ten-hours system of Victoria, an hour and a quarter was allowed off for meals, and work was stopped for the purpose twice in the course of the day, each stoppage involving, of course, a certain slackening of energy on the part of the workers. But under the eight-hours system there is usually only one break, and two steady four-hour spells of work, and it is easily possible that with an industrial stock distinguished like the English above all others for their powers of close and sustained application, the gain from the more continuous concentration of the labour might do more than make up for the loss of three-quarters of an hour in its duration. The double break is not indeed unknown in eight-hours



trades, but it seems to be more frequent in New South Wales than in Victoria. Sometimes they work from 7 a.m. to 5 p.m. in winter and 6 a.m. to 4 p.m. in summer, with two hours off for breakfast and dinner, but the common rule is from 8 a.m. to 5 p.m. or 7 a.m. to 4 p.m., with one hour off for dinner. Then, while some trades, like the masons and carpenters for example, obtain their three hours holiday on Saturday without requiring to make up for them by an extra half hour on the other days, and so work only 45 hours a week, it is a usual arrangement to work  $8\frac{1}{2}$  hours for the first five days of the week in order to be free half the day on Saturday. Other modifications of the system occasionally occur to suit the requirements of particular industries. The bakers, who have often to wait some time idle for their batch to rise, only begin to count their eight hours from the moment of its rising, when they begin actual work; not eight hours at the bakehouse, but eight hours at the baking, is their rule. Then overtime may be wrought incidentally in some industries, but opinion discourages it, and on the whole the eight-hours rule seems to be in practice substantially observed. Dr. Ruhland, it is true, thinks the short day in the factory induces the operatives to take work home to do after hours in their own rooms. The sweating system is a strange trouble to appear in this young community, this paradise of labour, but it seems to be as rife in the suburbs of Melbourne as it is in the East-end of London, and Dr. Ruhland says that "the source of the whole calamity lies undoubtedly in

the eight-hours day." But this is a mistake. The sweating trades are the tailors and shoemakers, exactly as here, and the tailors are not an eight-hours trade at all. The most and the worst of the Melbourne sweating seems to be done by women, who take in successive bands of young learners for six months without giving them remuneration, and then send them out half-taught upon an already over-crowded trade.

What use does the working man of Victoria make of the leisure he has obtained through the eight-hours day? The "go" and energy he is said by so many observers to put into his work is itself good evidence that he does not spend his time in vicious dissipation. If a shorter day in the workshop meant only a longer evening in the tavern he could not possibly show such signs of invigoration, and his day's work and his day's wages would soon have hopelessly declined. The general opinion in Victoria is that the habits of working men have improved and not deteriorated through the short hours. By leaving work early in the afternoon, they are enabled to live out in the suburbs in neat cottages with little gardens behind them, which are almost invariably owned by their occupiers, and they spend much of their leisure tending their little gardens or in some out-door sport or with their families. The two first effects of the Ten Hours Act in this country were the multiplication of mechanics' institutes, night schools, and popular lectures on the one hand, and the multiplication of garden allotments on the other. Workpeople

had neither time nor energy for such pursuits before—the only resource of the languid is the tavern. But with a longer evening at their disposal, it became worth while devising other ways of enjoying it, and the favourite among the English factory hands seemed to be the mechanics' institute in winter and the garden allotment in summer. So it is also in Melbourne. There is a peculiar affection in the way the working people who gave evidence before the Shop Hours Commission spoke of their gardens, and this little possession has become an established institution among the working class of that city—part of their customary standard of existence. There are regular auctions of building ground on the Saturday afternoons to which the workers go and buy their lots. They then erect their cottage and lay out their garden, and gradually pay off the cost. People are fond of celebrating the social and political virtues of a peasant proprietary, but the city of Melbourne has even a better wall of security in the belt of working-class cottages by which it is encircled, and the pride of the modest owners in their little home and garden diverts them not merely from political but from convivial temptations. The population has thus been undergoing most important changes of national character, which could not have come about at all without the longer leisure provided by the eight-hours day.

In the same way there has been developed that remarkable love of out-door recreations which is now characteristic of Victoria. The bright warm climate no

doubt encourages this disposition, but the shorter day of work allowed the opportunity for its gratification. Nor do the Victorian people neglect more intellectual pleasures. Mr. Sutherland, author of *Australia; or, England in the South*, says, "The Australians, notwithstanding their love of an open-air life, are really a reading public. Leading booksellers declare that in proportion to population the people of the colonies buy a larger proportion of British magazines than do those of any other country. It seems a rather remarkable thing that English periodicals should be more read at the antipodes than they are in the country in which they are published, but such, we are assured, is the fact."<sup>1</sup> Every visitor to Melbourne remarks on the magnificent Public Library of the city, thronged with working-class readers on the Saturday afternoons. Sir John Coode found 605 readers there when he visited it—about half as many again as the great reading-room of the British Museum will hold—and he was told by his guide, Sir R. Barry, that that was about the usual number on the Saturday afternoon. In the matter of free libraries Victoria is very far before us. It has 229 for its population of a million, while the whole United Kingdom can as yet boast only 200 for its population of thirty-six millions. The Melbourne Working Men's College has more than 2,000 students, and 53 per cent. of these are genuine artisans or day-labourers. Shortening the day necessitates developments like these.

<sup>1</sup> Page 112.

Leisure now and then may be largely wasted in drinking more, but where the working class get it as a permanent possession they devise, almost of necessity, many different ways of employing it, and every new device is, so far, a successful rival to the tavern.

The public-house interest in Victoria accordingly have always, I believe, been opposed to the eight-hours movement, and at some of the early elections it used all its influence against Ministers like Captain (now Sir Andrew) Clarke, who had shown favour to the cause. The eight-hours trades in their turn have actively opposed the public-house interest; as far back as 1858 they successfully resisted the proposed opening of a tavern beside their Hall. Then, according to universal testimony, while the upper and middle classes in Victoria drink a great deal more than the corresponding classes at home, the working classes there do not drink more than the working classes here, and the colonial-born are decidedly more sober than the immigrants. It may not be fair to compare the young colonials with the "old chums"—the survivors of the early immigrants—because the old chums who are still working are the residuum, if I may use the word without meaning offence, of a class from which numbers of the best members have long ago risen to be employers; and of all working men in the colony the old chums are admitted to drink most. But the born Victorian is also more temperate than the "new chum," the recent immigrant from the old country. The foreman of the

Australian Glass Company said before the Shop Hours Commission, "The glass trade is, of course, a thirsty trade, and the imported article, I can assure you, swallow pretty liberal quantities of liquor, but more than half the colonial hands are teetotalers. The others make the excuse that it is such a hot trade. I find the colonial youth generally intelligent, expert, and steady." Mr. R. Twopenny, in his *Town Life in Australia* (p. 98), says, "The best workman, when he chooses, and the most difficult to get hold of, is the thoroughbred colonial," and that though the sudden increase of wages is sometimes too strong a temptation for the fresh incomer, the settled working-class population are at least as temperate as they are in England. "For often," he says, "the sudden increase of wages is too much for his mental equilibrium, and a man who was sober enough as a poor man at home finds no better use for his loose cash than to put it into the public-house till. But, as a class, I do not think Australian working men are less sober than those at home" (p. 96). Another writer, Mr. C. Dumaresq, says that while the working men of Australia have more money and shorter hours, and more frequent holidays than working men at home, their "prosperity has not spoiled them. On the contrary, this class has immensely improved. The servility of the English country labourer and the gratuity-expecting servility of many an English workman has given place to a manly self-respect combined with perfect politeness. The ease with which a colonial of comparatively humble

position bears himself towards a man much his superior in rank, education, and wealth, encourages much friendly feeling between persons of different social grades.”<sup>1</sup> Then, in spite of the “larrikins”—the violent young street roughs, who are an irregular and, unfortunately, increasing product of colonial energy—the people of Melbourne need only one policeman for every 700 of population, while the people of London need one for every 350, and the people of Manchester one for every 440.

Now, all these things simply could not be, after thirty-four years of the short day, if the effect of shortening the day were, as many persons are forward to assert, to increase dissipation, and not, as others say with more justice, to diminish it. We may take it as certain that the working class of Victoria are not as a body abusing their leisure, though, no doubt, many of them may do so. Leisure, like any other means of good, is in certain hands always pervertible into an equally potent means of destruction, and the eight-hours day, while it has materially contributed to the elevation of workpeople in general, has not improbably increased the drunkenness of the drunken. At all events, the statistics of petty crime in Victoria—in which fully half the cases are cases of drunkenness—show that the occupations which have the worst record next to the unskilled labourers are the old eight-hours

<sup>1</sup> *English Illustrated Magazine*, 1891, p. 681.

trades—the masons, bricklayers, plasterers, smiths, engineers,—which, however, it must be granted, are at the same time the most arduous and exhausting trades. The consumption of drink is of course not drunkenness, but Victoria consumes much less drink per head than the United Kingdom, although from the constant immigration of adults it contains a greater proportion of inhabitants of drink-consuming age. Mr. Hayter, the statistician of the colony, taking a gallon of beer to contain as much alcohol as one-third of a gallon of wine or one-twelfth of a gallon of spirits, and reducing the consumption of all alcoholic drinks to their equivalent in beer on this basis, states the consumption per head of population in the United Kingdom to be 37·11, and the consumption of Victoria to be 32·88 gallons. But though the consumption of drink in Victoria is about a ninth less than it is here at home, the convictions for drunkenness are a fourth more than they are in England, a half more than they are in Ireland, and about the same as they are in Scotland.<sup>1</sup> On the other hand, serious crime is considerably less frequent in Victoria than in Ireland, and though the number of commitments is larger than in England or Scotland, the number of convictions is smaller. In serious crime moreover Victoria has a much better record than any of her Australasian neighbours. Mr. Hayter gives the following tables of commitments for

<sup>1</sup> *Victorian Year-Book for 1892*, ii. 215.



trial and convictions for 1881. The proportion is one per 100,000 of population.

<i>Country.</i>	<i>Commitments.</i>	<i>Convictions.</i>
New South Wales . . . . .	213 . . . . .	139
South Australia . . . . .	118 . . . . .	74
Queensland . . . . .	119 . . . . .	57
New Zealand . . . . .	96 . . . . .	48
Tasmania . . . . .	77 . . . . .	44
Victoria . . . . .	68 . . . . .	38
<hr/>		
United Kingdom . . . . .	64 . . . . .	46
Ireland . . . . .	104 . . . . .	53
Scotland . . . . .	65 . . . . .	49
England . . . . .	57 . . . . .	44

Statistics of comparative criminality must, however, be used with caution, because they depend on differences of police and judicial administration as well as differences in popular propensities.

A more useful criterion for our present purpose might seem to be the comparison of the criminal statistics of Victoria before and after the rapid spread of the eight-hours system about 1884 and 1885. And here we meet with a striking increase in the number of arrests for drunkenness since that time; but then that is but a continuation of an increase that had been going on for some years, and must be ascribed to the increase of popular prosperity during the period, for it began with the revival of prosperity after the depression of 1879, and it has now ended with the return of adversity in 1891. In 1880 only one person was arrested for drunkenness in Victoria for every eighty-five persons living in the

colony, but the number increased every year thereafter till there was in 1890 an arrest for every sixty inhabitants. The rate was as follows :—

In 1880 one in 85	In 1886 one in 68
„ 1881 „ „ 79	„ 1887 „ „ 65
„ 1882 „ „ 76	„ 1888 „ „ 57
„ 1883 „ „ 74	„ 1889 „ „ 61
„ 1884 „ „ 73	„ 1890 „ „ 60
„ 1885 „ „ 72	„ 1891 „ „ 63

These figures leave no doubt that there has been an unhappy increase of drunkenness in the colony during the last dozen years. But then the rate was one in sixty-five in 1877, and fell with the depression to one in sixty-nine in 1878, and one in seventy-seven in 1879; so that its connection with the state of the people's finances is obvious. Any connection on the other hand with the growth of the eight-hours movement is not apparent. Between 1880 and 1883 only three new trades obtained the eight-hours day, and there is a rise of eleven in the rate of arrests for drunkenness; but between 1883 and 1886 twenty-four new trades obtained the eight-hours day and there is only a rise of four. Between 1886 and 1888 there was an increase of four in the number of eight-hours trades and a rise of one in the rate of arrests; between 1888 and 1890 an increase of two in the eight-hours trades and a rise of three in the rate of arrests; while between 1890 and 1891 there was an increase of ten in the eight-

hours trades and yet a fall of three in the rate of arrests for drunkenness.

These figures therefore have no significance as evidence either for or against the eight-hours system, nor, it may be added, have they any significance for the habits of the colonial working classes in general. Many of the arrests were no doubt arrests of the same person over and over again, and there is no symptom of growing improvidence or dissipation about a community which has doubled the number of its depositors in the savings banks since 1884 and has now, with a population of only a little over a million, as many as 305,519 depositors, or 26·39 per cent. of her population. In Great Britain there is no more than 604,307, or 15·86 per cent. of the population. And the average deposit is about the same in Victoria as in Great Britain and in France, £18. It should be observed, too, that there has been a special increase in the number of depositors in Victoria during this period, when its arrests for drunkenness were multiplying. In 1884 there were only 152,000 depositors, or 16·50 per cent. of the population, a little better percentage than that of Great Britain; so that while every sixth inhabitant was a depositor in 1884, every fourth was a depositor in 1891.

Some ado has been made about the increase in certain sorts of serious crime in Victoria in 1891 as compared with 1881 and 1886, but the increase has taken place in the crimes against property, and is clearly enough attributable to the bad times which had then begun to

set in. But in connection with this subject of serious crime, it deserves notice that the number of arrests is much smaller in proportion among the Victorian born than among either English, Scotch, or Welsh, even when due allowance is made for the circumstance that almost all the children who are too young to commit crime, are necessarily counted among the Victorian born. The proportion of English born criminals to English born inhabitants of Victoria in 1891 was 46·68 per 1000; of Scotch, 60·69; of Irish, 90·84; but of Victorian born (when no allowance is made for children) 16·48. If a deduction of one-third be made from the Victorian born inhabitants for children, and the proportion be calculated on the remainder, it will still be only 24·7, and even if we make the deduction one half the proportion will only be 32·9.

Altogether, the more we examine the subject the more irresistibly is the impression borne in from all sides that there is growing up in Australia, and very largely in consequence of the eight-hours day, a working class which for general morale, intelligence, and industrial efficiency is probably already superior to that of any other branch of our Anglo-Saxon race, and for happiness, cheerfulness, and all-round comfort of life has never had its equal in the world before. For all this advantage, moreover, nobody seems to be a shilling the worse. It is truly remarkable how immaterial apparently has been the cost of the eight-hours day in Victoria. Look for the effects of it where you will,

they still ever elude your observation. Wages have not fallen, wages have not risen, production has not fallen except in certain trifling cases; prices have not risen except again in certain trifling instances; trade has not suffered, profits have not dwindled (or we should have heard croaking); the unemployed have not vanished, not so much as shrunk in any perceptible degree; the working classes—the great body of the nation—have an hour more to call their own, that is all. Shortening the day has apparently once again proved its own reward. It was found fifty years ago that in many branches of work the English mills did quite as much in ten hours as they used to do in twelve, and it has been found recently that the mills of Massachusetts do quite as much in ten as they used to do in eleven, the main reason being that the increased rest improved the physical and mental efficiency of the workman as a productive agent to quite the extent required to make the change profitable. It does not follow, of course, that because it was profitable to reduce the hours of labour from eleven to ten, it must be likewise profitable to reduce them from nine to eight; that is an entirely new problem, only to be solved by actual experiment. Theoretically there must be a limit in the division of work and rest at which the maximum profitableness, or what is the same thing, the maximum efficiency is reached; it would probably be different for different nations and individuals as well as different trades; but

the fact that the eight-hours day has been introduced without any disadvantage into so many varieties of occupations in Victoria suggests that that limit will be found, for the English race at all events, generally rather below than above the eight hours a day.

## CHAPTER IX

### EIGHT HOURS BY LEGISLATION

IF we believe, as the available evidence makes it most reasonable to believe, that the approach of a general eight-hours day of labour has no blight to cast on the economic prosperity either of the working class or of the nation at large, while it will be certain to contribute greatly to the moral and social elevation of both, then we shall not feel deeply concerned whether it is to come by means of employers' concessions, or of trade union agency, or of legislation. No doubt it will come, when it does come, by all three ways according to the situation and sentiments of different trades, and none of the three ways need be a bad way, if it be used with due care and discrimination, though the shortest and smoothest way may be safely accounted the best.

Voluntary concession would of course be the smoothest way, for it goes by tranquil and deliberate experiment with due opportunity for providing the needful arrangements for the changed conditions, but I fear it would

not be a very short way to a general adoption of the eight-hours day. Mr. William Allan, M.P., was perhaps, too hard on his own class, when he was asked by an interviewer whether he thought the employers would adopt the eight-hours system now that he had shown it to work successfully, and he said in reply, "No, employers would never introduce the eight-hours day of their own accord. In all his forty years' experience he had never known them of their own accord either raise wages or shorten hours, and, in his opinion, nothing would make the eight-hours day general but legislation." Individual employers have already introduced the eight-hours system of their own accord to no inconsiderable extent, and individual employers will continue to introduce it to no inconsiderable extent, but the mass of employers, like the mass of other people, are children of routine and move very slowly. They will not be easily convinced that short hours are as advantageous to them as long, or that an experiment which has succeeded in another employer's works will be made with the same success in their own, and I have in previous chapters mentioned several cases where, even after they had become persuaded of the inexpediency of long hours and would willingly give them up, if all other employers did the same, they kept each waiting for the other to begin first, from a lurking fear lest, after all, something should be lost in the competition even from a change which their reason told them to be beneficial. So strong is this precautionary instinct of



waiting for a general start, that if the eight-hours day is to be left to come from employers' concessions, it would certainly not dawn on the present generation of working men at all.

Trade union conflict might be a shorter method, but it would certainly not be smooth. Its adequacy for effecting the purpose is sometimes disparaged too much by advocates of legislation, for surely an agency cannot be justly considered inadequate which has made the eight-hours day almost universal in Victoria, and has successfully shortened the hours of labour in the majority of trades in this country. Still a method has grave drawbacks which involves constant resort on the part of the organized trades to the calamitous perturbations of a strike, and which leaves the unorganized or ill-organized trades without any resource at all, so that the question naturally arises, whether there can be any good objection to having recourse to legislation ?

Now the problem of legislative interference for a general eight-hours day for all trades stands manifestly on quite a different footing from the old problem of legislative interference for a ten-hours day in the textile factories. That came, not as a problem at all so much as a moral command, a stringent call of humanity and justice for the suppression of systematic overwork which was destroying the health, strength, and happiness of the factory operatives of the country ; a call felt as hardly admitting of any questioning back.

"I am a free trader, but I am a Christian," said Dr. Chalmers, when asked by Richard Oastler if he would support the Ten Hours Bill, and while other divines and economists still held aloof he gave all his weight to Oastler's cause as a cause of common righteousness. When Cobden declared that the Act would stop every factory engine in the country, the prevailing mind merely replied, then let the engines stop, they must at any rate no longer grind out children's lives. It was a dictate of conscience and must be done, cost what it might. No such stringent obligation exists this time, except for a few exceptional trades working in atmospheres vitiated with dust and heat and poisonous gases of various sorts. Of these trades the chemical workers have probably the strongest case on account of the combination of long hours with deleterious work, but the miners, whose hours are not nearly so long, nor their work nearly so deleterious, have been the first to gain the public ear, and have already succeeded in obtaining the sanction of Parliament and even of many of the strongest enemies of short hour legislation in general, to the expediency of legislative interference with the hours of labour in trades working under conditions of exceptional danger to life or health. It has not been disputed that it is the State's duty to regulate the hours of labour in the interests of the public safety in branches of industry like the railway service, for example, where over-prolonged work is a frequent cause of injury to others, and it seems generally admitted that it is equally the State's

duty to regulate the hours of labour where there is any necessity for the protection of the life of the workers themselves. But then that admission concerns only a few trades at the most, and leaves the general question of short hours for all trades by legislative enactment untouched.

The presumption, of course, is always against interference, so that good cause must always be shown, and in this respect there is no distinction between adult labour and infant labour, such as many persons think it important to draw. The State has no business to interfere with the work of boys and girls any more than the work of grown-up people without good cause, and it has the same business, with good cause, to interfere with the work of grown-up people as it has to interfere with the work of girls and boys. All depends on the goodness and sufficiency of the cause, and in determining what is a good and sufficient cause for the State's interference on this subject the true and statesmanlike note is that which was struck by Mr. Chamberlain in his powerful speech in the House on Mr. Leake's Mines (Eight Hours) Bill in March, 1892, when he said he refused to take any narrower principle for his guidance than the principle of the greatest happiness of the greatest number, and that he held with Professor Jevons that "the State is justified in passing any law, or even in doing any single act which, without ulterior consequences, adds to the sum total of happiness." The question is a question of balance of advantage to the

public. If interference benefits twenty thousand persons, while non-interference benefits only ten thousand, the State's duty is to interfere.

In the matter of the hours of labour it is possible to say that the question is not one between benefit and hurt, but merely between the preference of one section of people for one form of benefit and the preference of another section of people for another form of benefit. One man likes leisure, though he gives up pay for it, another likes money, though he gives up leisure; why should not each be left to realize his liking and pursue his happiness in his own way? They must know their own likings and their own happiness better than the State can know it for them. But the answer to that is that they are not left free to pursue their own happiness in their own way as things are. Under the conditions of modern production a certain uniformity of practice is imposed on bodies of workpeople. The old domestic craftsmen could fix their own hours, and they interfered with nobody and nobody interfered with them; but in the modern mill the hours must from practical necessity be the same for all. So that if two different sections of the workpeople have alternative preferences it is only possible for one of these preferences to be realized, and the preference which is realized may often be the preference of the minority, or it may be the preference which is less conducive to the national progress. In such a case leaving alone is virtually interfering in behalf of the minority or of the less publicly valuable preference.

There is no sound reason therefore against interfering with adults, when necessary for such purposes, in their hours of labour any more than interfering with them in any other part of their conduct or concerns. It is ever a question of the greater good of the greater number, and indeed, although non-interference with adult labour is often propounded as a sort of ultimate principle in politics, it is really grounded in the minds of its reasonable advocates on the belief that conditions of work are a subject on which the State cannot intervene advantageously, because the State is too ignorant of the special circumstances of the different trades to know good from evil, and would be quite as liable to harm as to help by its intervention. Mr. Fawcett is often said to have objected to interference with the hours of adult women, but Mr. Fawcett objected to it not because the women were adults and could look after themselves, but because women had too few employments open to them already, and a measure which would be likely to contract their field of employment still more would be hurtful to the class it was meant to protect. The objection he took was not against interference but against what he believed to be injurious and unfair interference. It was an objection on the merits, and so is the more general objection which I have just stated, that State interference with the hours of labour is dangerous, because the State cannot know properly the conditions of the numerous trades it would have to prescribe for.

Now there is much force in that more general objection. The State certainly cannot be expected to know all the particular circumstances of the infinite variety of trades within its jurisdiction, but then the State can always avoid the danger that might emanate from its ignorance by giving the particular trades themselves a voice in the adoption or modification of the regulations it lays down, and in fact the only sort of short hour legislation that is wanted in this country by any considerable body of opinion is a law which would leave its own practical adoption dependent on the option of individual trades, and which would contain provision for considerable elasticity in its application to their respective circumstances. The idea of a universal uniform compulsory Eight Hours Act finds no favour except with a handful of impracticable Socialists; and the great bulk of the working-class, as tested by the Trades Union Congresses, are divided between one form of trade option legislation and another. They ask for either (1) an eight-hours law to be enforced in any particular trade only after a majority of its members or organised members in the whole country demand its enforcement; or (2) an eight-hours law from whose operation any trade may exempt itself by the vote of a majority of its members or organised members in the country—what is called the trade exemption principle; or (3), which has been spoken of favourably by Mr. Gladstone and is known as the local trade option principle, an eight-hours law to be operative in any

trade in any locality, only when a majority of the members of the trade in that locality have voted for it or refrained from exempting themselves from it. If there is any industry in which an eight-hours day is impracticable, it is not proposed to apply it to such an industry; nobody would dream of applying it to herring fishing. In Victoria the promoters of the eight hours Bill speak of exempting agriculture as an industry in which it is impracticable; and some of the advocates of the measure in this country would exempt shipping for the same reason. What they mean probably is that it is impracticable to introduce an eight-hours day in trades like these, without some provision for variation from the standard in certain seasons or emergencies, for an eight-hours day is already adopted as a general rule in agriculture in Tasmania, and in shipping in Victoria. It is indeed generally recognised that any law that may be passed on the subject must make adequate provision for the peculiarities and necessities of particular trades in regard to overtime and other matters, and such a provision, together with the requirements of local or trade option, seems to furnish sufficient safeguards for due respect being paid to the special conditions of special trades in any eight-hour legislation which is likely to be practically adopted.

As between trade option and trade exemption judgment must be clearly given against the latter, because in the first place it asks the State to prescribe for trades without consulting them at all, and consequently

without that security for meeting their special circumstances which it is the merit of the trade option plan to provide; and because in the second place, it proposes to interfere without any reason with the hours of that large class of working men who are not engaged in common employment with others, but work independently on their own account. According to the last census there are over two million persons in England and Wales alone who are neither employers nor employed but operatives working on their own account, about twice the reported membership of the unions of the organised trades, and it cannot be justly pretended that when one of this class chooses to work twelve hours in the day he in any way compels his neighbour to do the same who would otherwise prefer to work only eight. Both generally work by the piece or the job as four-fifths of our English work-people do, and the hours are of no matter in the bargain for their work. Those of this class who choose to work very long hours would probably be doing better for themselves if they shortened them, but it is not for the State to compel people to do better for themselves, if they are no way interfering with the betterment of their neighbours.

It will be objected that a trade option law would overwhelm the voice of the employers by the voice of the employed, but then the employed are quite as deeply concerned in the prosperity of the trade as the employers; they are now accustomed through the ex-



perience and discussions of their unions to take quite as intelligent and just views of the conditions of the trade; they would themselves moreover have to bear most of the loss—I might almost say the whole loss—if any resulted from the shortening of their hours, for they would have no more power then than they have now to compel the employer to be content with a less percentage of profit, and if they gave him less work they must take less wages. Besides, one of the very reasons for resorting to legislation is to enable the workpeople to surmount the unwarranted inertia of the employer, so that when short hours have proved advantageous in one establishment, they may not be kept out of others merely because the employers are afraid to move. The chief danger at present of entrusting the workpeople with this power lies in the unfortunate belief they so widely cherish that their weal is to come from diminishing their production all round instead of coming, as it only can come, from increasing their production all round; but this danger may not prove so serious in reality as it might be, for we know that where eight-hours experiments have been made the workpeople have never taken advantage of the shortening of hours for the purpose of diminishing their production, but, on the contrary, have wrought better and always kept their production up.

On the whole a law such as is proposed, which shall only come into force with the consent of the trades to which it applies, which admits of considerable elasticity

in its operation so as to meet the peculiarities of their respective conditions, and which can only be carried into operation gradually, allowing each trade or locality to benefit by the experience of those that have preceded them, seems to minimise the risks of the process, and ought not to be regarded, as it often is, with the alarm which might be reasonably enough excited by a great act of simultaneous compulsion like the decree of the French Provisional Government in 1848, which reduced the day of labour of all trades from fourteen and fifteen hours a day to eleven in the provinces of France and to ten in Paris. The immediate effect of that Act was to create a great crisis in French industry. Blanqui, the economist, was in Rouen about the time, and says this decree set the working men all wild with excitement about the immense increase of work they believed it would provide for the unemployed and the rise of wages they expected it to give to themselves. But the actual results were the very opposite. Trade had already been shaken to some extent by the preceding political troubles, but from the moment this decree was issued, says Blanqui, the crisis no longer knew any bounds. Manufacturers, unprepared for so sudden a change, and believing themselves menaced with hopeless ruin, closed their mills altogether rather than work at a loss, and could not be lured to open them again even by the promise of high export bounties. Mobs of idle workmen, preferring long hours to starvation, declared for breaking the law decreed for their protection, quarrelled

with the workmen of the more necessary trades who were still in favour of the new law, and kept the streets in continual turmoil with their noisy and threatening processions. The measure which was meant to cure inconstancy of employment resulted in an immense aggravation of the disease, because it was introduced in so sudden and inconsiderate a way that it frightened employers from employing. We know now by plenty of experience that an eleven-hours Act could not in reality have done the employers any harm, but the world did not know that in 1848, and capital—the most timid as well as the most daring thing in the world—very naturally took alarm at this great compulsory leap in the dark. But a universal short-hours measure, sprung suddenly upon employers without any previous experience of shortening hours, is one thing; a short-hours Act tempered by trade or local option, proposed to a generation with much experience of the working of shorter hours, and to be carried into effect step by step as each trade or each local branch of the trade sees its way to adopt it, is an entirely different thing, and seems quite free from the dangers that may be supposed to beset the former course.

Many people would postpone legislation on this subject until foreign nations are prepared to join in it, and the working day could be shortened in all the world simultaneously by international agreement. Sometimes the aim seems to be an eight-hours maximum for all countries, sometimes merely a proportional shorten-

ing in each ; but they will wait long who wait for either. Apart from the difficulties of concluding such an arrangement, it is obviously impracticable to enforce it. If any country thought it lost some point of advantage in the settlement, who could step in to compel the strict observance of that part of it ? and it is only for such parts that there is any need of international settlement at all. We find it difficult enough to suppress "crib time" in our own factories at present, but how are we to suppress it in the factories of our foreign rivals, if they believe it strengthens them in the competition against us ? But happily this proposed international arrangement is as unnecessary as it is impracticable. Crib time is not beneficial to the cribber. No real advantage is gained by long hours, and if we are once persuaded that as much work can be done in a working day of eight hours as in a working day of any longer limit, we can shorten our own day without caring in the least what other nations do.

## INDEX



# INDEX

## A.

ABRAHAM, W., M.P., eight hours and unemployed, 180  
 Abrahams, Miss, short hours at Leith, 37  
 Admiralty, the, contemplated eight hours, 67  
 Agriculture, hours last century in England, 3  
 Alderney, French and English masons at breakwater, 149  
 Aldwell, J. A., on true difference in working time between ten hours and eight hours system in Victoria, 300  
 Alexander, John, reduction of hours at New Lanark, 16  
 Allan, W. and Co., engineers, Sunderland, experience of eight hours, 57 ; on absentees, 119  
 Allotments, promoted by shorter hours, 129  
 Alsace, comparative efficiency of labour, 147, 152  
 America, ten hours experiences, 25 ; nine hours experiences, 42 ; efficiency of labour compared with English, 165, 167  
 Armstrong, Sir W., inferiority of Continental labour, 149  
 Atkinson, E., estimated advantage of English climate for cotton spinning, 168  
 Austria, eleven hours day in, 31

## B.

BAINES, Sir E., hours of handloom weavers, 5  
 Balfour, Gerald, M.P., examination of Mr. Tom Mann, 238  
 Barge builders, shorter hours and unemployed, 205  
 Beaufoy, Mark, M.P., eight hours experiment, 79  
 Belfast, eight hours among linen lappers, 44  
 Belgian labour and English compared, 156 ; competition in iron girders, 163  
 Bell, Sir I. L., Luxemburg and Cleveland miners, 149 ; German and English blastfurnacemen, 153 ; improvement of Irish at Cleveland, 159  
 Bentham, Jeremy, on New Lanark mills, 17  
 Birtwistle, T., on effects of nine hours day, 35  
 Blanqui, M., effects of eleven hours decree in France in 1848, 326  
 Blastfurnaces, eight hours in Cleveland, 90 ; in West Cumberland, 91  
 Bohemia, effect of shorter hours in, 31  
 Bookbinding, results of shorter hours in 1867, 39, 117  
 Book-club started after shorter hours, 132

Boot clickers, forty-eight hours week among, 47  
 Boxmakers, effect of shorter hours, 39  
 Bradford, foreign competition, 163  
 Brassey, Mr., experience of eight hours day with masons, 80 ; French and English navvies, 148 ; masons, 149 ; effect of good wages on efficiency, 159  
 Brentano, Prof., on work in good and bad years, 159  
 Bricklayers, alleged deterioration in efficiency, 177  
 Bridges, Dr., on atmosphere of cotton weaving mills, 102  
 Bright, Right Hon. John, on effect of free trade on English labourers, 149 ; on eight hours day in Victoria, 272  
 Brunner, Mond & Co., eight hours experiences, 75  
 Building trades, eight hours, 80 ; alleged deterioration, 177  
 Bull, Rev. Mr., joins eight hours movement of 1833, 249 ; on its reception by working class, 254, 255  
 Burroughs, Wellcome & Co., experiences of eight hours, 78  
 Bushill, T. & Son, Coventry, experience of 50 hours week, 84

## C.

CABINETMAKING, effect of eight hours day in, at New York, 83  
 Campbell-Bannerman, Right Hon. H., eight hours day in Woolwich Arsenal, 66  
 Canada, shorter hours in, 37  
 Caslon & Co., typefounders, eight hours experience, 79  
 Chadwick, Sir E., report in 1833 as to eleven hours day, 18  
 Chalmers, Dr., on Ten Hours Bill, 318  
 Chamberlain, Right Hon. J., ex-

perience of shorter hours in Birmingham, 38 ; on province of State in labour questions, 319  
 Chambers, J., on eight hours in Yorkshire mines, 48  
 Cheerfulness, effect of short hours on, 124  
 Chemical works, eight hours in, 73 ; effect at Tyneside, 75 ; Gaskell, Deacon & Co.'s, 75 ; Brunner, Mond & Co.'s, 75 ; United Alkali Co.'s, 78 ; Burroughs, Wellcome & Co.'s, 78  
 Chemnitz, competition in hosiery, 163  
 Chevalier, Michel, instance of reduction of hours, 32 ; on French and English labour, 146  
 Cigar factory, effects of shorter hours, 37 ; in Holland, 43  
 Clarke, Lieut.-Gen. Sir Andrew, service to eight hours cause in Victoria, 275  
 Cleveland, eight hours in blast-furnaces, 90 ; miners compared with Luxemburg miners, 149 ; Irish in, 160 ; furnacemen compared with American, 166  
 Cobden, Richard, on Ten Hours Bill, 143  
 Competition, foreign, and eight hours day, 142 ; conditions of, 143 ; reasons of success abroad, 163 ; between Glasgow and Lancashire, 154  
 Connel, J., eight hours in Fife mines, 51  
 Contentment, industrial worth of, 122 ; Dr. Ure on, 123 ; effect of short hours on, 124  
 Cotton operatives, English and Continental compared, 150, 152 ; Glasgow and Lancashire, 154 ; English and American, 167 ; English and Hindoo, 170 ; effect of Ten Hours Act on their unemployed, 183 ; rise of their wages at Mulhouse and at Manchester, 224 ; effect of Ten Hours



Act on their wages, 228 ; health of, 102  
 Cox, Horace, on probable effect of shorter hours in railway service on unemployed, 207 ; fallacious economic theory on effect of shorter hours on unemployed, 215 ; effect of short hours on wages, 223  
 Crib time, 326  
 Cutlery, eight hours in, in America, 71

D.

DALE, David, short hours and machinery, 109  
 Darbshire, W. A., 48 hours week in slate quarries, 45  
 Denny, William, inventions by Dumbarton workpeople, 140  
 Deterioration of labour, alleged, 176  
 Dollfus, M., shorter hours at Mulhouse, 31  
 Don, Mr., on eight-hours question in Victoria, 273 ; resolution in Legislative Assembly, 277  
 Durham, short hours in mines, 50

E.

EDUCATION, effect of short hours on, 133 ; effect of on efficiency, 137 ; Sir W. Fairbairn on, 137 ; at Willimantic Thread Mills, 137 ; education and efficiency in America, 139 ; in Germany, 140  
 Eight hours by legislation, 315  
 Eight hours day in Victoria, 258  
 Eight hours movement of 1833, 244  
 Eight hours work and ten hours pay, 217  
 Elliot, Sir G., on miners' hours of work in Wales and Northumberland, 49 ; miners' energy in Durham and Northumberland, 50

Elliott, E., cornlaw rhymer, joins eight hours movement of 1833, 249  
 Eleven hours day in Holland, 30 ; in Switzerland, 27 ; in France, 326  
 Ely, Prof., education and efficiency in United States, 139  
 Engineers, eight hours at Mather & Platt's, vi. ; Johnson's, 56 ; Allan's, 57 ; Short's, 59 ; Keith's 60 ; overtime, 65 ; time taken in stoppages of machinery, 112, 156 ; health, 102 ; eight hours proposal of Society of Amalgamated, 61 ; answer of Association of Masters, 61 ; English and Continental at Armstrong's, 149 ; French and English, 150.  
 English labour, characteristics, 146, 147 ; on Rouen railway, 148 ; compared with French at machine work, 157 ; compared with American, 165

F.

FACTORY system, cause of prolonging working day, 9  
 Fawcett, Right Hon. H., on interference with hours of adult women, 321  
 Fielden, John, starts eight hours movement in 1833, 244  
 Fife, eight hours in mines, 51  
 Findlay, Sir G., number of railway workers in United Kingdom, 207  
 Fitters, eight hours day, 81  
 Flax manufacture, effect of ten hours act on unemployed in, 198  
 Fortescue, Sir J., value of English leisure in fifteenth century, 8  
 Fox, Mr., manufacturer, on Cork and Manchester textile workers, 160  
 Frame-work knitters, hours in last century, 5

France, shorter hours in, 31; reason for superiority in silk, 163  
 Freese, Herr, window blind maker, Hamburg, experience of eight hours day, 80  
 French labour, comparative efficiency of, 114; characteristics, 146, 147; compared with English in machinery, 158; effect of shorter hours in ship-yards, 161; in America, 160  
 Fuller, Thomas, on immigration of Flemish weavers, 7

## G.

GASKELL, DEACON AND Co., eight hours in chemical works, 75  
 Gasworks, effects of eight hours day at Sheffield, 86; at London, 87; at Darwen, 90  
 Gävernitz, Dr. Schulze, comparison of English and Continental operatives, 150, 153; work in good years and bad, 159  
 Germany, short hours in, 32; eight hours in mines, 52; characteristics of its labour, 146, 148; its overlookers, 152; efficiency of its labour in America, 166  
 Glarus, Eleven Hours Act in, 27  
 Glasgow, efficiency of its cotton operatives compared with Lancashire, 154; opinion of its Trades Council, 155  
 Glass, eight hours in glass bottle-making in England, 71; in glass manufacture at Dusseldorf, 72  
 Grad, Karl, on eight hours in German mines, 52; English and Alsatian cotton weavers, 152  
 Grant, Mr., effect of Ten Hours Act in Nuttall Mills, 24  
 Gray, Hon. W., effect of ten hours day in Atlantic Mills, 98; effect of shorter hours on absenteeism, 120  
 Greg, Mr., effect of shorter hours in

his mills, 18; experience of forty-eight hours week, 45  
 Guest, R., on decline of athletic sports after prolongation of hours, 11  
 Guest, Mr., Sheffield cutler, experience of Saturday half-holiday, 41  
 Gunton, G., eight hours and unemployed, 180  
 Guyot, L., value of man, 230

## H.

HADFIELD Steel Foundry Co., Sheffield, experience of shorter hours, 70, effect of shorter hours on absenteeism, 119  
 Harris-Gastrell, Mr., on "working sick" in American mills, 121; on efficiency of American labour, 164  
 Healey, Mr., eight hours question in Victoria, 273; motion in Legislature, 278  
 Health, effect of short hours in Lancashire, 20; Leek, 37; Dunfermline, 37; Cleveland, 55; chemical works, 77, 105; better under short and hard work than under long and laggardly, 101; of cotton weavers, 102; gas workers, 105, 130; engineers, 106; miners, 106; in cotton mill, 119; of box-makers, 119; effect of eight hours on in Victoria, 303  
 Hearn, W., education and efficiency, 140  
 Henderson, James, comparative efficiency of Scotch and Lancashire cotton-workers, 154  
 Hewitt, Abram, comparison of English and American iron-workers, 165  
 Heye, M., glass maker, Dusseldorf, experience of eight hours, 72  
 Hobhouse's Act, 18  
 Hodgkinson, Mr., improvement of

Victorian labour under eight hours, 295  
 Holden, Messrs., of Bradford, comparison of experience of wool combing in England and France, 114  
 Holland, Eleven Hours Act in, 30  
 Hook, Dean, night schools in Leeds after Ten Hours Act, 133  
 Hopetoun, Earl of, on trade organisation in Victoria, 275  
 Horner, Leonard, effects of Ten Hours Act, 19; state of trade in 1846, 187; growth of mills in 1847, 193  
 Howell, Mr., factory inspector, crisis of 1847, 186  
 Huddersfield tramways, eight-hours day and unemployed, 206; and wages, 221  
 Hyndman, H. M., estimated effect of shortening railway servants' hours on unemployed, 207

I.

INDIA, competition with Lancashire, 171; hours of labour, 172; characteristics of labour, 172; comparison with English labour, 173  
 Intelligence, effects of shorter hours on, 107, 127, 131; in Victoria, 304  
 Inventors in a Dumbarton shipyard, 140  
 Ireland, shorter hours, Londonderry, 41; Belfast, 44  
 Irishmen, poor workmen at home, 160; improvement after a time at Cleveland, 160; compared with English, 161; efficiency of in America, 166  
 Iron-founders, shorter hours and unemployed, 201  
 Iron girders, Belgian competition in, 164

Iron mines at Cleveland, eight hours at, 54  
 Iron-moulders, effect of short hours, 37; on unemployed, 202  
 Iron-workers in Sydney, effect of eight hours, 69; in America, efficiency of different nationalities, 165  
 Irregularities of work, effect of short hours on, 115; in book binding, 117; hardware, 117; at Hadfield foundry, 119; at Allan and Co's., 119

J.

JAM works, eight hours in, 79  
 Jars, Gabriel, hours in English and Scotch mines in last century, 1  
 Jevons, Professor, high wages the cause of short hours, 217; province of State, 319  
 Johnson and Co., Stratford, experience of eight hours, 56  
 Joiners, experience of eight hours, 81  
 Jones, W. E., eight hours in a London gas-works, 89

K.

KELLEY, E. D., effect of shorter hours in lithographic printing, 86  
 Kennedy, Mr., Belgian and English labour, 156  
 Kynoch and Co., ammunition manufacturers, adoption of eight hours system, 68

L.

LABOUR, efficiency of in different nations, 146; alleged deterioration of in England, 176; efficiency in Victoria, 295  
 Lancashire, efficiency of cotton

workers in, 154, 155 ; in comparison with Lowell, 167  
 Legislation, eight hours by, 315  
 Libraries, started often after shorter hours, 132, 133  
 Linen manufacture, 54 hours week in, 103 ; foreign competition in, 164  
 Linen lappers, eight-hours day at Belfast, 44  
 Linton, A., effect of eight hours day in London gasworks 87 ; its effect on health and morals, 130  
 Lithographic printing, effect of shorter hours in, 86  
 Livesey, G., eight hours in Sheffield gasworks, 87 ; in London gasworks, 89  
 Londonderry shirtmakers, effect of shorter hours, 41  
 Lowell and Lancashire, comparative efficiency of labour, 167  
 Ludlow, J. M., eight hours day in South Yorkshire mines, 48  
 Luxemburg, miners compared with Cleveland miners, 149

## M.

MACAULAY, LORD, on Ten Hours Bill, 145, 175, 233  
 Macdonald, A., M.P., on eight hours in mines, 50  
 McGoppin, Mr., eight hours day and protection in Victoria, 264  
 Machinery, effect of shorter hours with, in Alsace, 58 ; M. Freese's works, 81 ; Switzerland, 96 ; effect of Ten Hours Act, 110 ; Mr. Chamberlain's experience, 110 ; Mr. W. Whitwell, on machines and efficiency, 111 ; time spent in stoppages of, 112 ; stoppages in Belgian mills, 156 ; in English and Alsatian mills, 150 ; enhances value of personal efficiency, 157  
 Manby and Wilson, effect of meat diet on French workmen, 160  
 Manchester, hours at time of Reform Bill, 9 ; effect of ship canal, 145 ; manufacturers on work in good years and bad, 159 ; crisis of 1847 in, 188 ; wages in, before and after Ten Hours Act, 228  
 Mann, Tom, on machinery and personal efficiency, 110 ; shorter hours to check undue growth of productive capacity, 236 ; his examination by Mr. Gerald Balfour, M.P., 238  
 Markham, Gervase, agricultural hours in 16th century, 4  
 Marshall, Professor, probable effect of eight hours day on production, 99 ; on wages, 223  
 Masons, efficiency under eight hours system, 80  
 Massachusetts, experience of shorter hours, 14 ; ten hours day in, 26 ; eight hours in, 83  
 Mather & Platt, eight hours experiment, vi.  
 Miners, hours in last century, 1, 2 ; experience of allotments, 2 ; eight hours day in South Yorkshire, 47 ; Northumberland, 49, 52 ; Fife, 51 ; Durham, 50 ; Manchester, 52 ; Germany, 52 ; Cleveland, 54 ; improvements under shorter hours, 127 ; unemployed under shorter hours, 202 ; rise of wages, 225  
 Morals, effect of shorter hours on, at Nuttall Mills, 24 ; at Birmingham button works, 41 ; Hamburg blind works, 82 ; West Cumberland furnaces, 92 ; South Yorkshire mines, 127 ; Rock Island arsenal, 127 ; Belfast, 129 ; London gasworks, 130 ; Switzerland, 130 ; Victoria, 305  
 Mundella, Right Hon. A., on long hours and foreign competition, 12 ; on intelligence of English labour, 147 ; on illiteracy of Nottingham factory hands, 167

Munro, Professor, on defective drawing arrangements in mines, 53; on unemployed engineers in 1872, 200

N.

Nasmyth, James, on time wasted through defective training of the eye, 140

National Regeneration Society, 249

Navvies, English and French compared, 148; improvement of English, 149

Nine hours day, effects; 33, T. Birtwistle on, 35; Mr. Oldroyd on, 36

Night schools, promoted by Ten Hours Act, 133

Noble, Captain, on eight hours day, 61; on deterioration of labour, 176

Normansell, J., on eight hours in South Yorkshire Mines, 47

Nottingham frame work knitters' hours in last century, 5

O.

Oastler, Richard, start as factory agitator, 250; speech on National Regeneration Society, 254

Oldenberg, Dr., eight hours in Saxon mines, 53

Oldroyd, Mark, effect of nine hours day, 36

Ordnance factories, eight hours in English, 66; in American, 68

Overlookers, English and Continental compared, 152

Overpressure, Professor Marshall on, 99; Mr. Birtwistle on pushing system in Lancashire, 102

Overtime, general inexpediency, 39; in engineering, 65, 201; Mr. Bowling on, 65; at Green, M'Allen and Feilden's printing office, 84; Messrs. Bushill's ex-

perience of, 85; effects in Massachusetts carpet mill, 98; in india-rubber works, 122

Owen, Robert, reduction of hours at New Lanark, 16; comparison of results between New Lanark mills and Rochefoucauld's mills in France, 17; starts eight hours movement in 1833, 248; writes eight hours catechism, 251; proposes eight hours in 1817, 252

P.

PAINTERS, eight hours experience, 81

Pease, Sir J. W., on production of Durham mines, 50

Phillips, Mark, on Ten Hours Bill, 143

Philosophical instrument making, comparison of English and Continental labour, 158

Pidgeon, D., quoted, 137, 159

Potteries, long hours and irregular work, 115

Printers, eight hours experience in England, 84; in Missouri, 86; fifty hours week, 84

Production, effect of shorter hours on, 14—141; in Victoria, 291

Protection, relation to short hours in Victoria, 264

Q.

Quarries, forty-eight hours week in, 45

R.

RAILWAY workers, estimated effect of shortening their hours on unemployed, 207

Ransome and Sims, effects of nine hours day, 40

Regeneration Society, National, 249

Z

Restriction of output, 213  
 Richelieu, Cardinal, working class spoiled by repose, 161  
 Rogers, Professor Thorold, eight hours in fifteenth century, 6  
 Roscher, Professor, education and efficiency in Germany, 140 ; nationality in labour characteristics, 146  
 Rose, Edwin, comparison of French and English labour, 147, 149, 153  
 Ruhland, Dr., eight hours day and sweating system in Melbourne, 301  
 Rylands, D., experiences of eight hours in glass bottle-making, 71

## S.

Schoenhof, J., comparative efficiency of English and American cotton workers, 167  
 Schuler, Dr. F., effects of Eleven Hours Act in Switzerland, 27  
 Schulze-Gävernitz, Dr., comparative efficiency of English and Continental cotton operatives, 150 ; of English and American, 167  
 Scotch labour, comparative efficiency, 166  
 Scott, Mr., shipbuilder, effect of reducing hours in France, 32, 161  
 Seaton, A. E., engineer, on Messrs. Allan's eight hours experiment, 61  
 Shipbuilding, effect of shorter hours in, 32, 161 ; fifty-two hours week in at Portsmouth and Clyde, 46  
 Shirtmakers, effect of shorter hours in Londonderry, 41  
 Short Brothers, Sunderland, eight hours experience, 59  
 Siemens, Sir C. W., on English and Continental labour, 158  
 Silk manufacture, effect of shorter hours in, 37 ; why France beats

us in, 163 ; Ten Hours Act and unemployed in, 199  
 Slagg, John, M.P., opinion of cotton trade on results of short hours, 25  
 Slate quarries, forty-eight hours week in, 45  
 Smith, Adam, eight hours day in mines, 1 ; work in good years and bad, 159  
 Smith, Peshine, education and efficiency in America, 139  
 Smith, Dr. Southwood, report of factory commission on eleven hours proposal, 18  
 Spill, Mr., on overtime, 122  
 Spinning, effect of shorter hours in Switzerland, 29 ; English and Continental, 150  
 Spoiled work in last hour of day, 121  
 State interference, 315  
 Steadman, W. C., shorter hours and unemployed in barge-building, 205  
 Steel, T., on eight hours in chemical works, 75  
 Steel foundry, shorter hours in, 70, 119  
 Stephens, James, eight hours experiment in brick making, 299  
 Struve, M., factory inspector, on effects of Eleven Hours Act in Holland, 30  
 Sweating system and eight hours in Melbourne, 301  
 Switzerland, effect of Eleven Hours Act, 27  
 Sydney, eight hours in iron trades, 69

## T.

Tannery, effect of ten hours day in Swiss, 29  
 Tariff, relation of to shorter hours in Victoria, 264  
 Temperance, effect of shorter hours